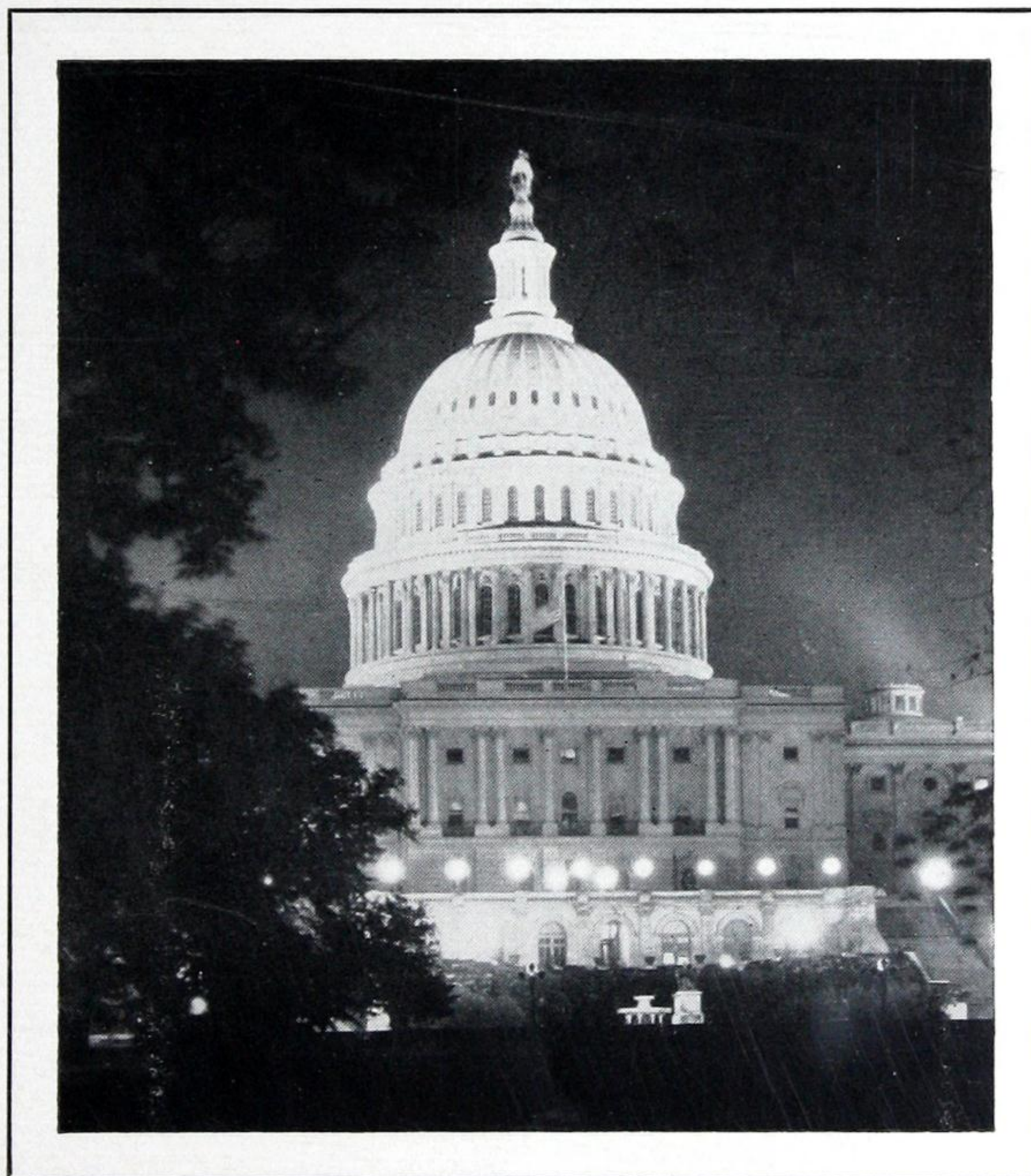


NOVALUX

FLOODLIGHTING PROJECTORS



GENERAL ELECTRIC COMPANY
SCHENECTADY, N. Y.

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CCA

NOVALUX FLOODLIGHTING PROJECTORS

Types L-24-A and -B, L-29-A and -B, L-30-A and -B, and L-31-A and -B

NONFERROUS CASINGS—GLASS REFLECTORS

APPLICATION

Office Buildings, Hotels, Banks, Stores, Theatres, Factories, and Power Stations

The floodlighting of public and commercial buildings, with both clear and colored lights, attracts marked public attention and emphasizes architectural beauties at night, when the greatest number of people have opportunity and leisure to see and appreciate them. The value of floodlighting as an advertising medium is evidenced by the ever-growing number of installations.

Monuments and Public Buildings

In every municipality there are some notable examples of architecture—statues, public buildings, places of historic interest—in which the community takes pride. The floodlighting of such structures, with clear or colored lights, adds to their impressiveness and gives them a prominence that is even greater at night than by day.

Decorative and Spectacular Effects, Landscapes

The floodlighting of residences, gardens, waterfalls, caves, and spectacular natural scenes endows them with new beauties at night and presents a charm quite different from their appearance by day. In the same way, brilliant effects may be obtained in connection with Christmas lighting and decorative illumination for festival occasions.

Billboards, Signs, and Smokestacks

For applications such as these, G-E floodlights can be installed in practically any convenient place and, hence, do not require complicated wiring. They increase the working hours of billboards and multiply advertising value by the contrast of the illuminated surface with its dark background of night.

Fountains, Swimming Pools, and Bathing Beaches

The beauty of any fountain, regardless of size, can be enhanced at very little expense by clear and colored floodlighting. Complete fountains can be obtained as a unit. Swimming pools and bathing beaches can be safely utilized at night where adequate floodlighting is installed.

Baseball, Football, Soccer Fields, Stadiums, and Golf Courses

Most people have no time during the day to attend ball games and athletic meets. In order to allow them to witness or participate in such events, athletic fields are now being floodlighted, for practice as well as for games. Additional revenue from gate receipts will justify the expense of installation and operation. Floodlights may be mounted on poles adjacent to the grounds or on top of the stands and buildings near by.

Winter Sports

G-E floodlighting projectors have been found especially adaptable for lighting winter carnivals, toboggan slides, skating, hockey, and curling rinks. As the units can be mounted at a considerable distance from the area that is being used, there is no need of poles, which are often dangerous obstructions.

Pageants, Carnivals, Expositions, Circuses, and Fairs

The floodlighting of carnivals and similar events permits a larger attendance than would be possible in the daytime only and adds charm and gaiety to the scene. The use of floodlighting projectors, which are readily portable, obviates the necessity of complicated wiring for a number of small units and simplifies and expedites installation and transfer of equipment.

Construction Work

Contractors are frequently called upon to do construction work at night. Sometimes it is an emergency repair job; at other times night work is necessary in order to complete a contract on time. Floodlighting projectors, because of their portability, are readily adaptable to this application.

Railroad Yards, Docks, Bridges, Aqueducts, Reservoirs, and Mines

Locations such as these must be nightly guarded against mischief makers and prowlers. Floodlighting aids materially in such protection. In addition, the floodlighting of railroad yards, mines, and docks affords greater speed and safety in handling cars and cargo.

Gasoline Filling Stations, Roadside Stands, Parking Areas, and Tourists' Camps

With the heavy and annually increasing use of the highways by motorists, a wide demand has arisen for the brilliant lighting of service stations, roadside stands, etc. This demand is completely met by floodlighting, which not only serves the convenience of tourists but conspicuously and favorably advertises the business and location.

Real Estate Developments, Public Auctions

The floodlighting of real estate developments and houses for sale, as well as locations where property will be sold at auction, is a vivid and effective means of attracting prospective purchasers.

Air Advertising and Airports

The increasing use of air transportation makes it profitable to advertise the location of buildings or chains of buildings by floodlighting their roofs. In addition a group of floodlights of a distinctive color, when mounted on the top of a building or chain of buildings, is a brilliant identification and excellent method of advertising. Directional signs to airports, mounted on the roofs of buildings, may also be effectively illuminated by floodlights. Airport structures when floodlighted facilitate handling of equipment and provide protection to planes.

Farms, Barns, Chicken Houses, Orchards, etc.

Floodlighting such buildings and locations guards against mischief makers, thieves, and prowlers, and protects farm property in general. The convenience afforded by the floodlighting of farmyards and outbuildings is an obvious advantage to the farmer and his family.

TYPES L-24-A AND L-24-B

For Railroad Classification Yards and Other Large-area Lighting

ADVANTAGES OF RAILROAD-YARD LIGHTING

Over two-thirds of the gross income of our railroads is derived from the handling of freight. This movement of freight cars is continuous, and anything which tends to expedite it with a decrease in breakage and theft and with less danger to the train operators is consequently of the utmost importance not only to the railroads but also to our whole economic life. Statistics collected by some of our larger railroad systems prove the many advantages of proper lighting of the railroad yard.

The Committee on Illumination of the Association of Railroad Electrical Engineers in November, 1923, reported the following advantages of yard lighting:

1. Speeding up of cars handled in the yard at night.
2. Reduction of cars damaged by rough handling and collision in the classification yard; with consequent reduction in claims, in delay in delivery of goods, in loss of service of damaged cars, etc.
3. Reduction in losses due to pilfering, on account of more effective policing possible with a well-illuminated yard.
4. Improved working conditions and increased safety for employees working in the yard.

That these benefits are appreciable is evidenced by the fact that certain railroads have authorized relatively large expenditures for improved yard illumination.

GENERAL REQUIREMENTS

In past years, both pendent units and floodlighting projectors have been used for this service, but at the present time opinion is almost universal that the most effective results are obtained by the use of floodlighting projectors. The requirements of a projector for service in the railroad yard are most severe. An examination of existing units which had been proposed for this work showed that many of the most desirable features were lacking.

MATERIAL

Because of the fact that sulphuric acid gas from the smoke of the locomotives is ever present in the railroad yard, it is most important that the material from which the unit is constructed be impervious to attack from this gas. The units are at all times exposed to the weather and should, therefore, be weatherproof and be built of a material which does not rust. These two require-

ments are fulfilled by a cast-silico-aluminum alloy construction.

MECHANICAL DETAILS

The projectors are, as a rule, mounted on high towers where space for the electrician or maintenance man is very limited. In many cases the platform from which these men must operate is at the rear of the unit and in such cases it is most important that they be able to relamp or clean the projector from the rear without changing the direction of the beam. The best way to obtain this feature is by the use of a unit which has a hinged back door, or one which is equipped with relocating devices.

PHOTOMETRIC RESULTS

The determining factor on the quantity of light in the yard is the value of beam lumens from the projector. Consequently, careful consideration should be given to the efficiency of the unit. Since in many cases the throw is 1000 feet or more, the unit must have a high value of central beam candle power. Towers and space in the railroad yard are very expensive and anything that can be done to reduce the number of projectors necessary to light a given area is a most important consideration. With the above-mentioned points in mind, the engineers of the General Electric Company have developed railroad-yard-lighting projectors which possess all these advantages.

Because of their very high efficiency, these projectors are more economical than any other unit on the market and are suitable for intensive large-area lighting and are particularly adapted for the lighting of railroad yards and the floodlighting of large buildings and signs. Standard 110- or 220-volt, 750-, 1000-, and 1500-watt, general-service base-up-burning lamps can be used in the L-24-A projectors while the 110-volt, 1000-watt base-down-burning floodlighting lamp can be used in the L-24-B projector. The most economical results are obtained with the larger lamps.

HOW TO FOCUS

In focusing, care should be taken to see that the center of the lamp filament is in the exact center axis of the rear reflector. It is also important that the filament be brought into the focal point along the horizontal axis at right angles to the adjustment mentioned on previous pages.

RECOMMENDATIONS

The L-24-A and -B projectors, being dust-proof, weatherproof, and corrosion-resisting, are adapted for railroad yards. They may be used with lamps up to 1500-watts capacity.



(Photo No. 444230)

Fig. 1

Kentucky and Indiana Terminal Railway Yards, Louisville, Kentucky



(Photo No. 119555)

Fig. 2

New York Central Railroad Yard, Selkirk, N. Y.



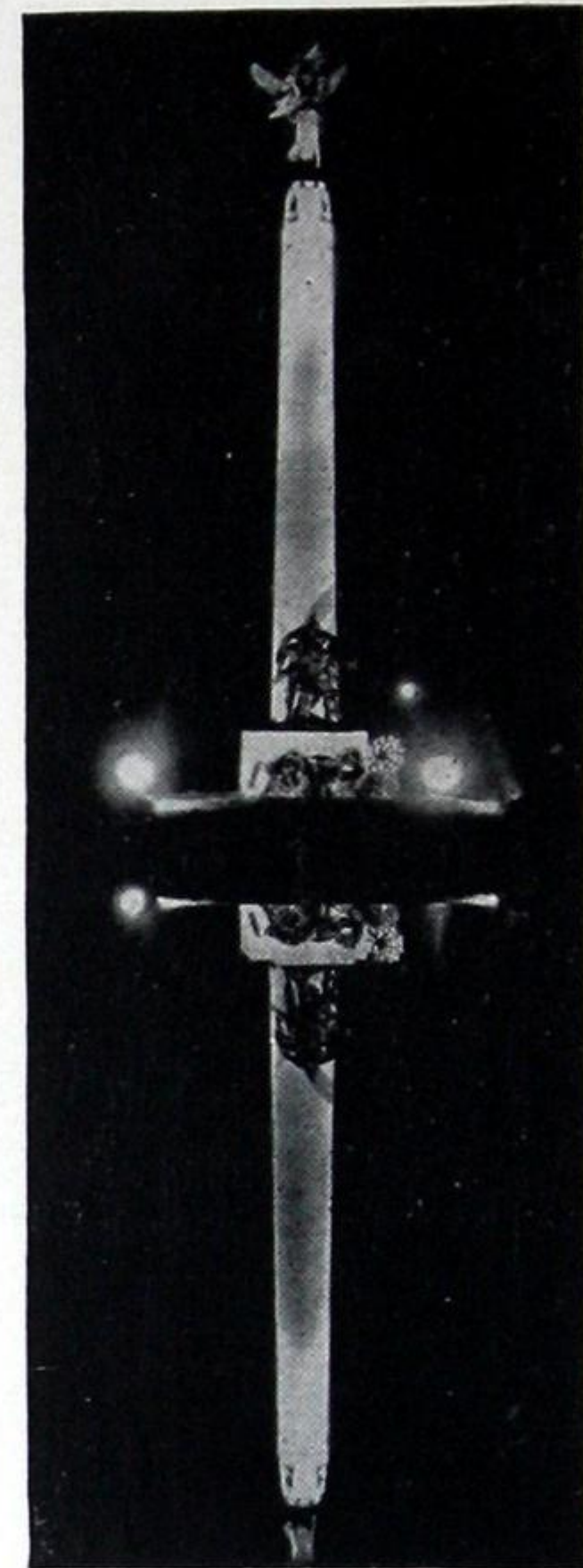
(Photo No. 438126)

Fig. 3

Boston and Maine Railroad Yard, Mechanicville, N. Y.



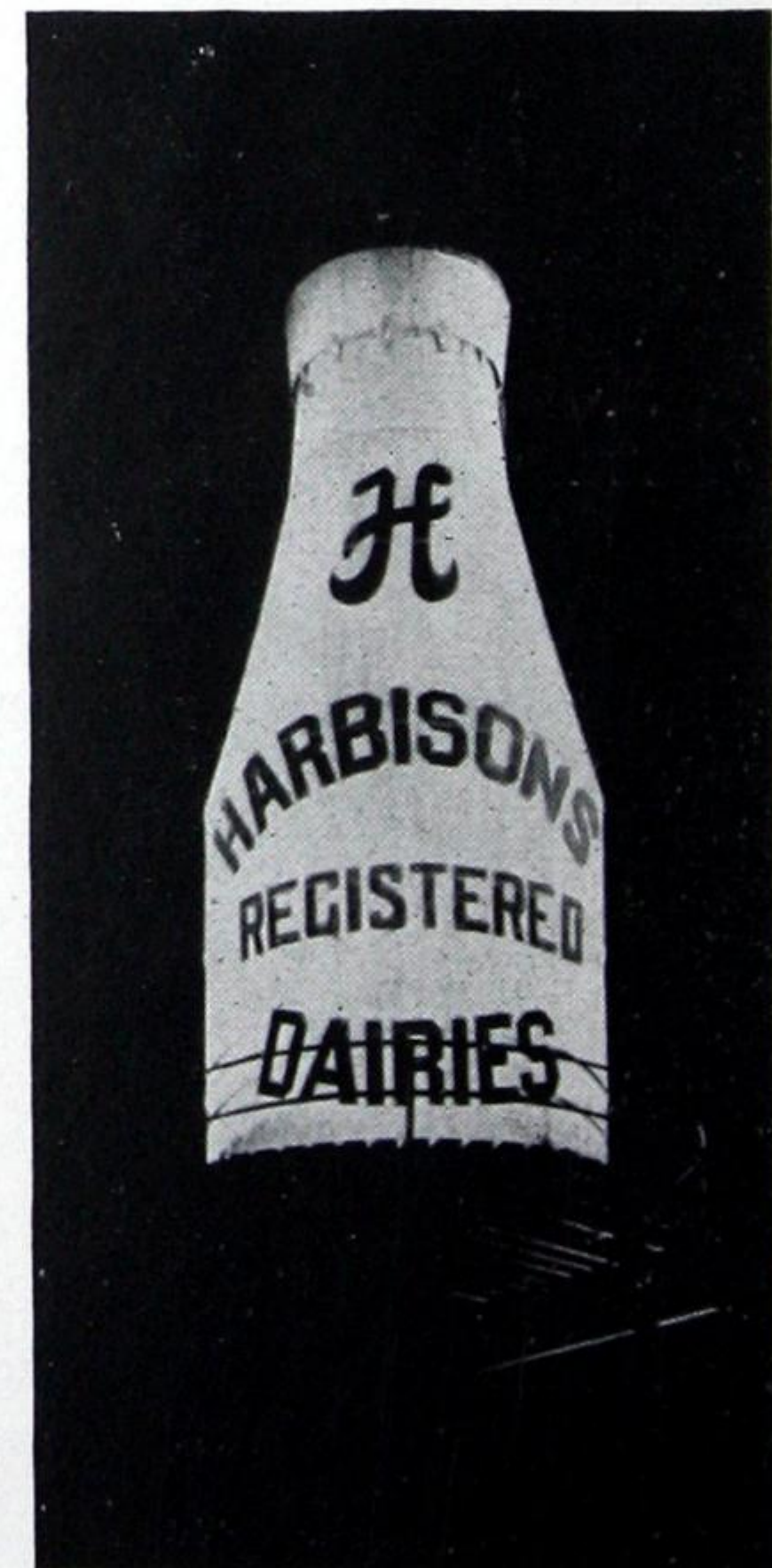
(Photo No. 438140)
Fig. 4
The People's Bank, Johnstown, N. Y.



(Photo No. 436152)
Fig. 5
Montclair Memorial, Montclair, N. J.



(Photo No. 438217)
Fig. 6
Dade County Court House, Miami, Florida



(Photo No. 239063)
Fig. 7
Water Tower



(Photo No. 119826)

Fig. 8

State Capitol Building, Austin, Texas



(Photo No. 438193)

Fig. 9

Union Terminals Building, Cleveland, Ohio



(Photo No. 438076)

Fig. 10

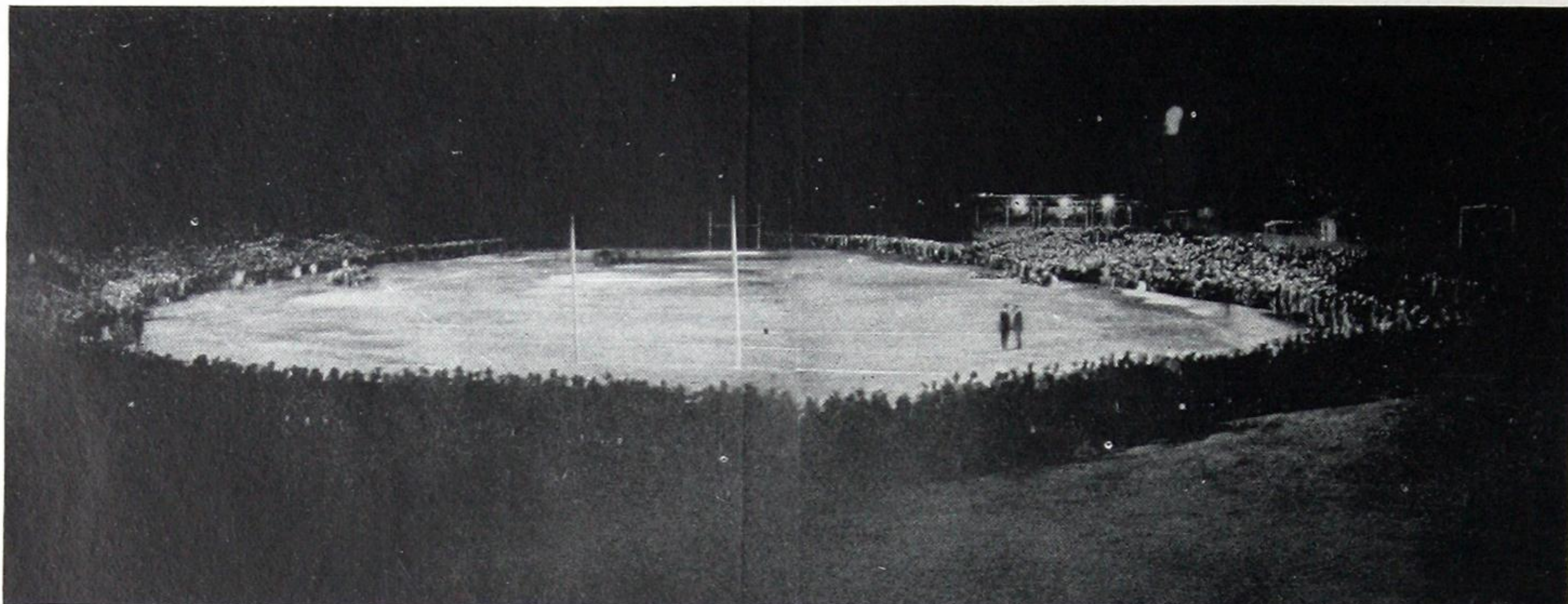
Paramount Theatre and Office Building, New York City



(Photo No. 438198)

Fig. 11

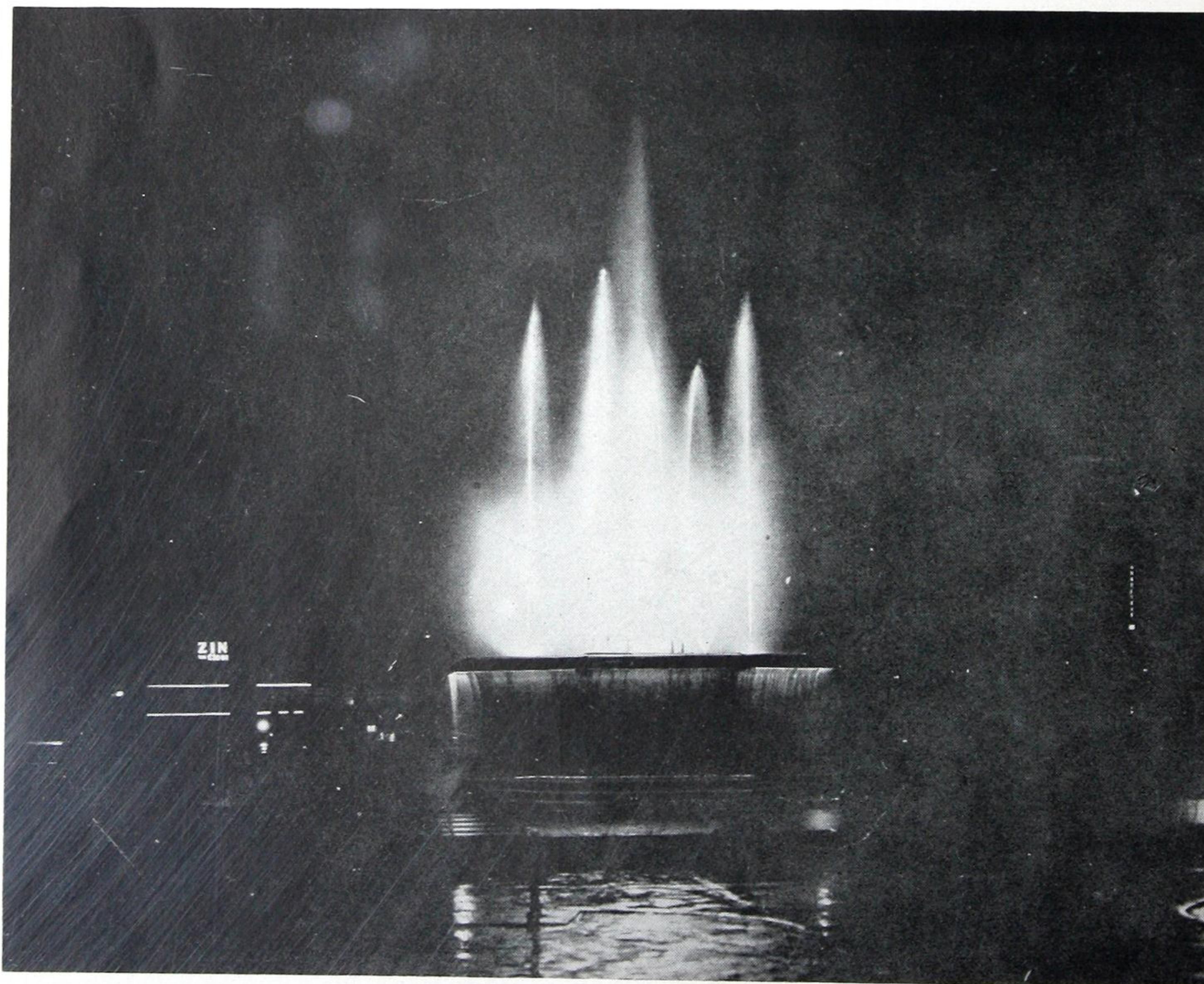
Union Terminals Building, Cleveland, Ohio



(Photo No. 277353)

Fig. 12

Night Football Game



(Photo No. 463233)

Fig. 13

Novalux Electric Fountain, Erie, Pa.

TYPES L-29-A AND L-29-B

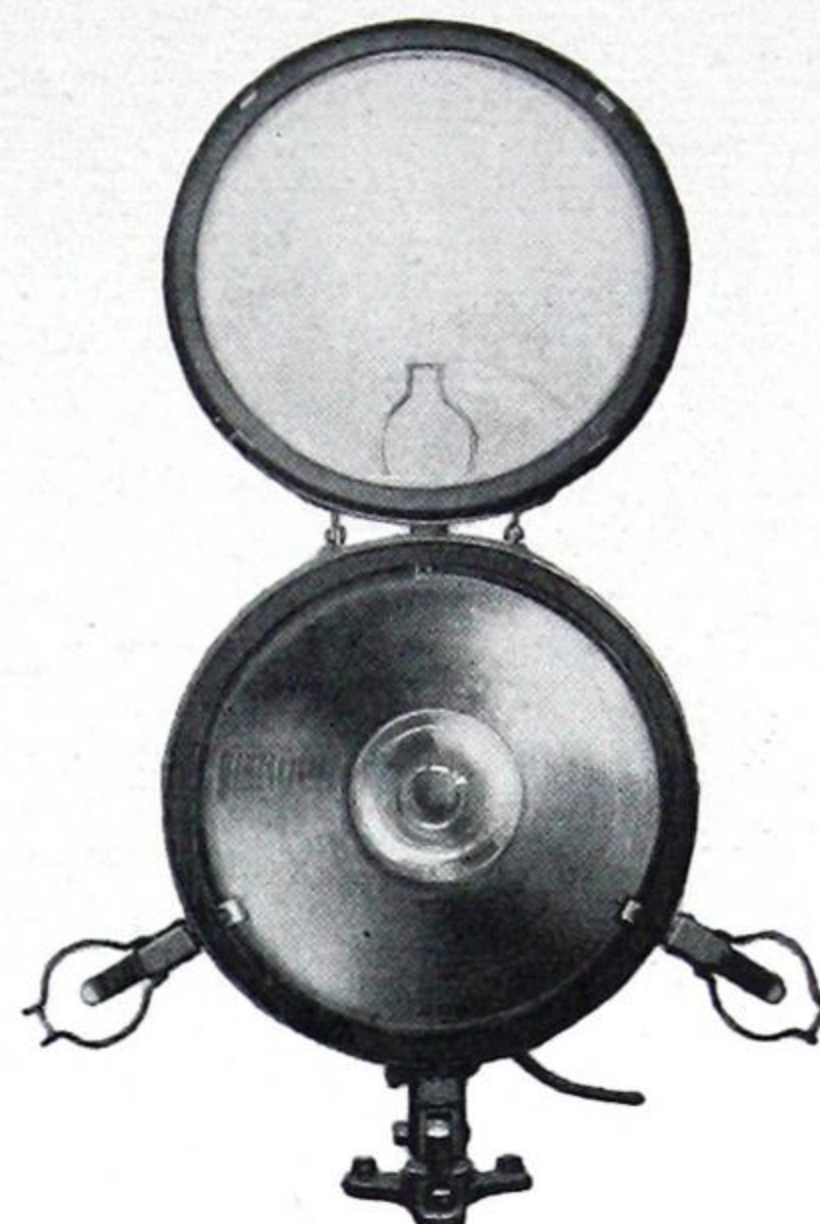
The Type L-29-A projector is designed primarily for use with a 200-watt general-service lamp and the Type L-29-B for use with a 250-watt floodlighting lamp. They are small in size and particularly adapted for mounting in places where the available space is limited. The L-29-A is suitable for a working distance up to 175 feet; the L-29-B, up to 200 feet. Practically any type of light distribution may be obtained with the proper reflector and lens combination.



(Photo No. 281204)

Fig. 14

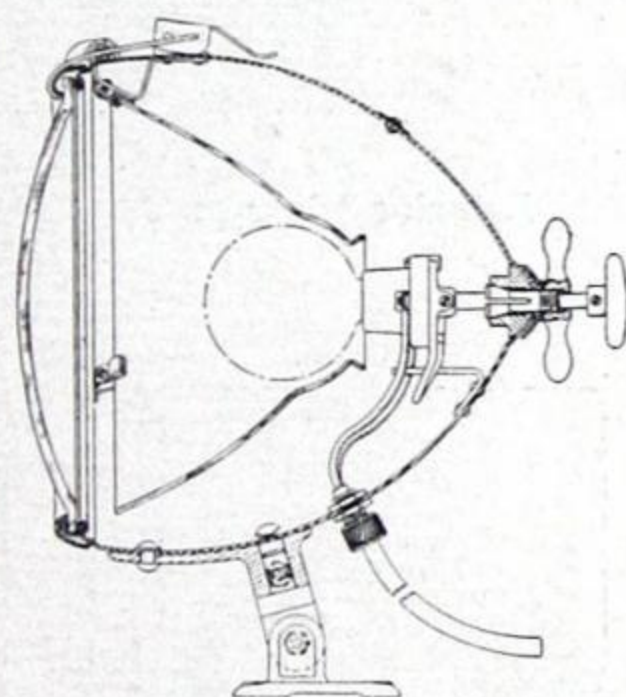
Front View of Types L-29-A and -B
with Clear Plain Lens



(Photo No. 281206)

Fig. 15

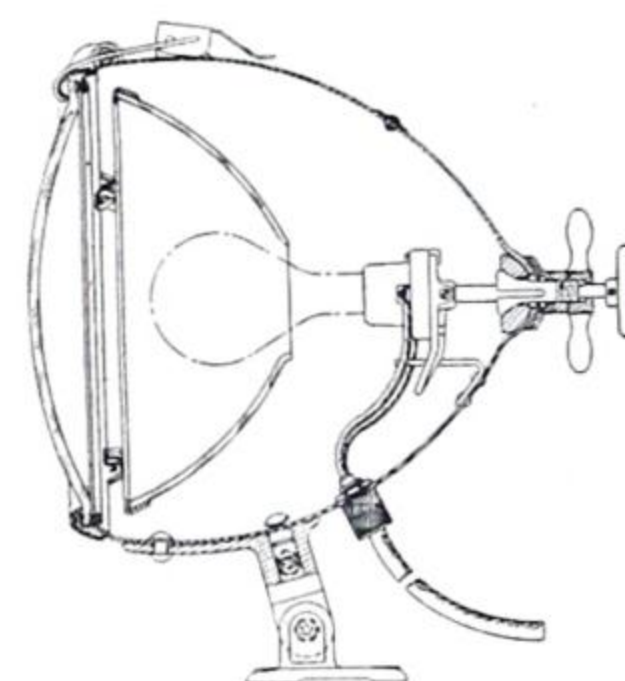
Interior View of Types L-29-A and -B



(P-3758082)

Fig. 16

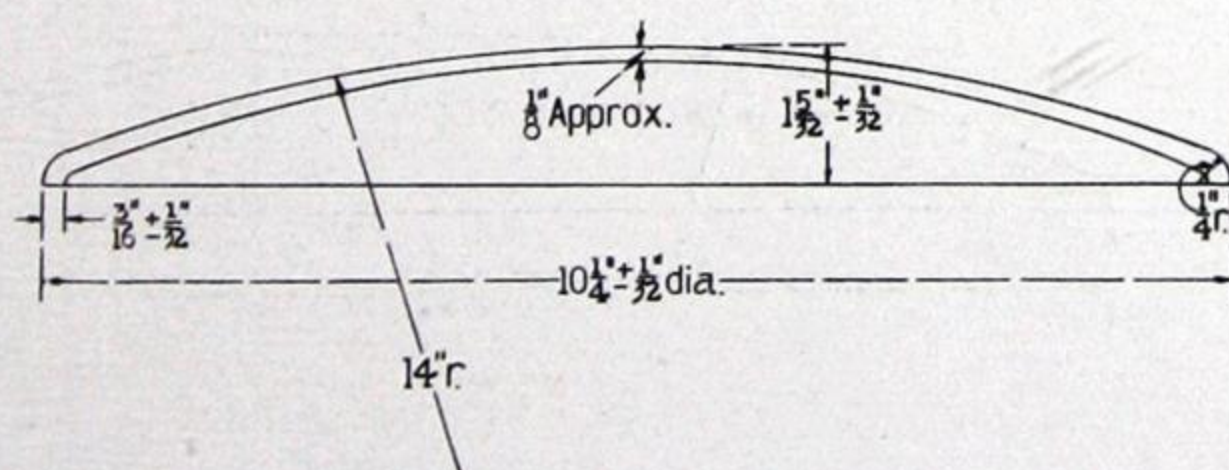
Cross Section of Type L-29-B
with 250-watt, G-30 Flood-
lighting Lamp



(M-3758692)

Fig. 17

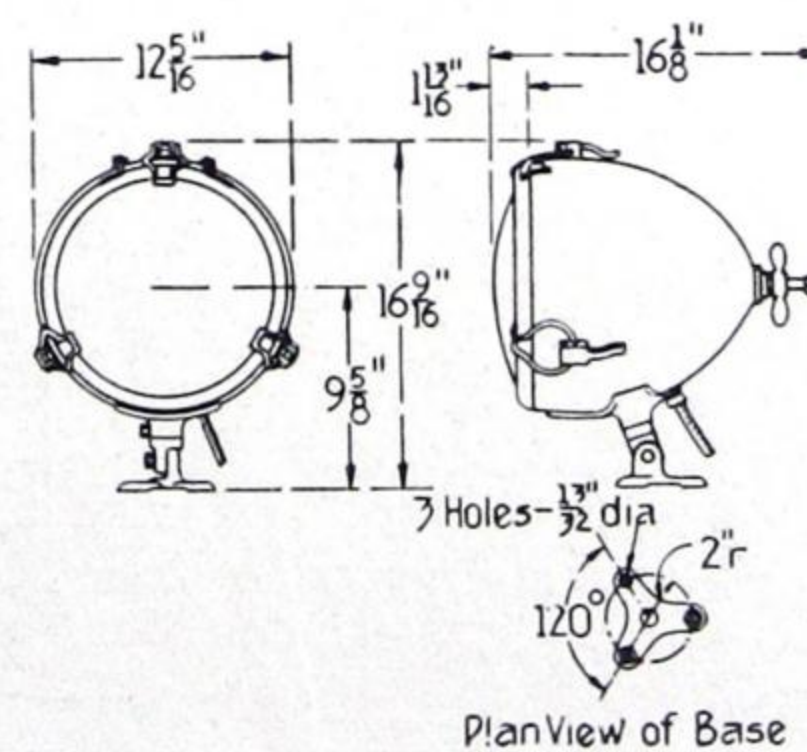
Cross Section of Type L-29-A
with 200-watt, General-
service Lamp



(M-3758335)

Fig. 18

Dimensions of Color Plates
for Types L-29-A and -B



(K-3758023)

Fig. 19

Dimensions of Types L-29-A and -B

TYPES L-30-A AND L-30-B

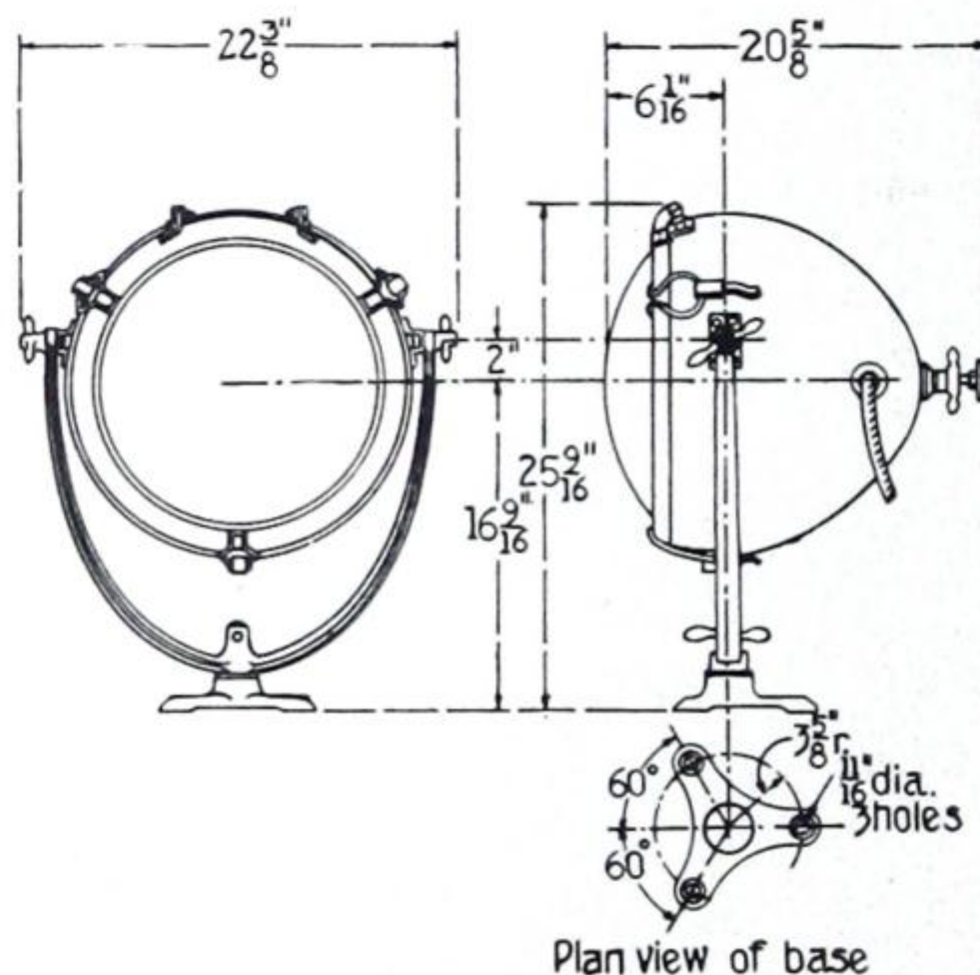
The Type L-30-A projector is designed primarily for use with a 500-watt general-service lamp and the Type L-30-B for use with a 500-watt floodlighting lamp. They are very compact units and may be mounted in small spaces. The L-30-A is suitable for a working distance up to 300 feet; the L-30-B, up to 400 feet. Practically any type of light distribution can be obtained with the proper reflector and lens combination.



(Photo No. 281201)

Fig. 20

Front View of Types L-30-A and -B
with Clear Lightly Stippled Lens

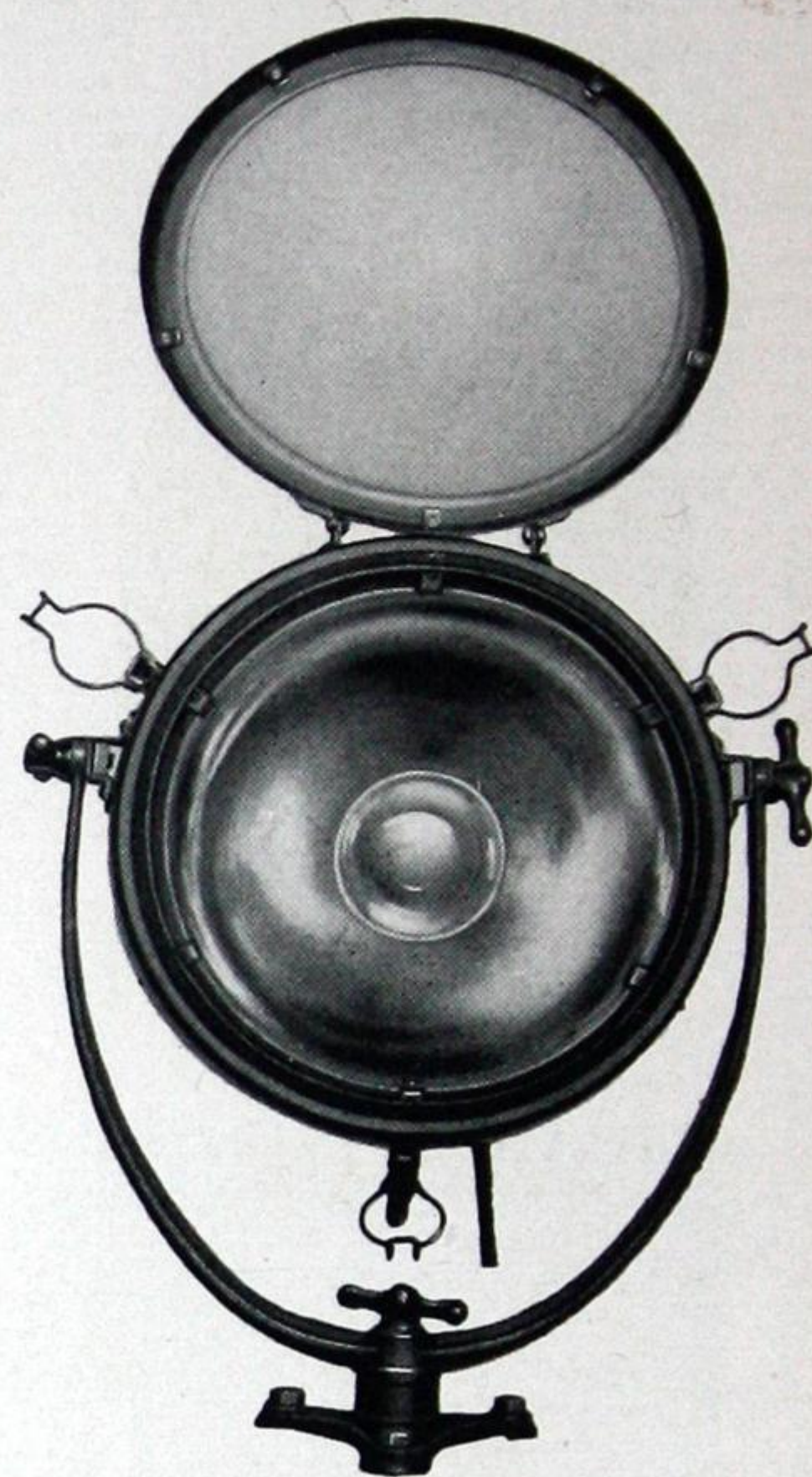


Plan view of base

(K-3758322)

Fig. 22

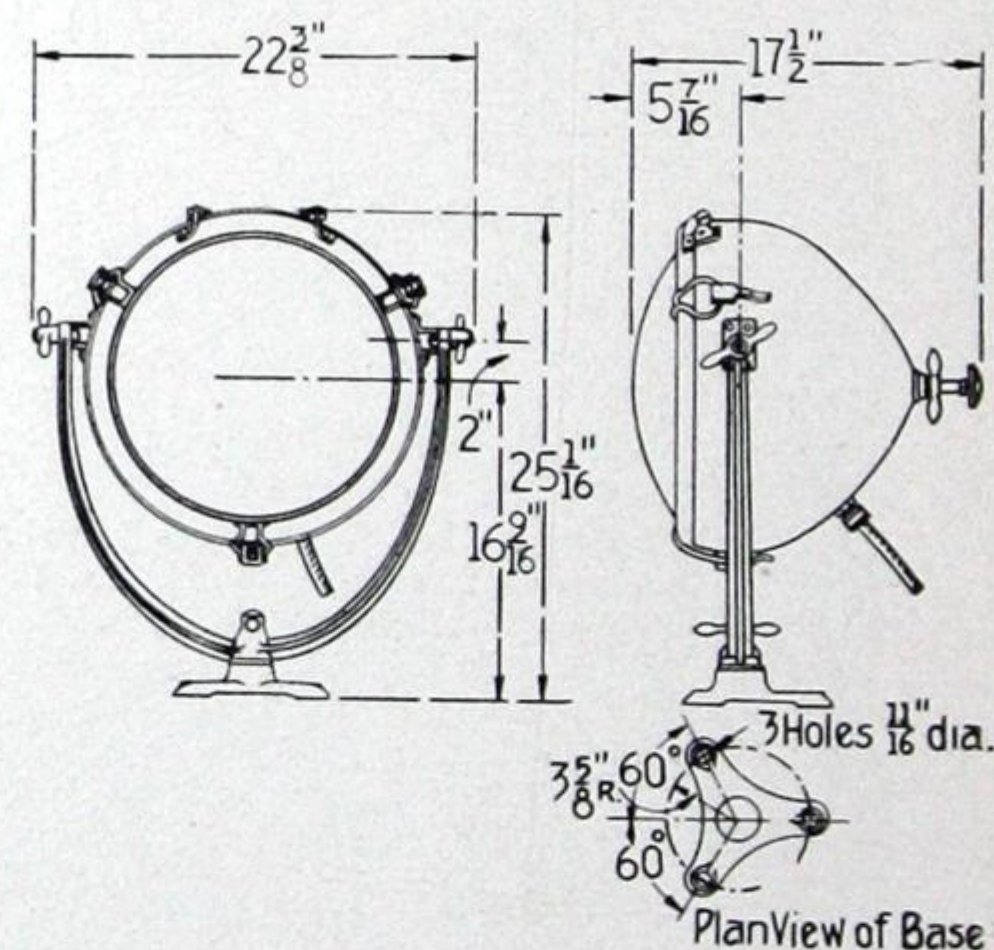
Dimensions of Type L-30-A



(Photo No. 281203)

Fig. 21

Interior View of Types L-30-A and -B

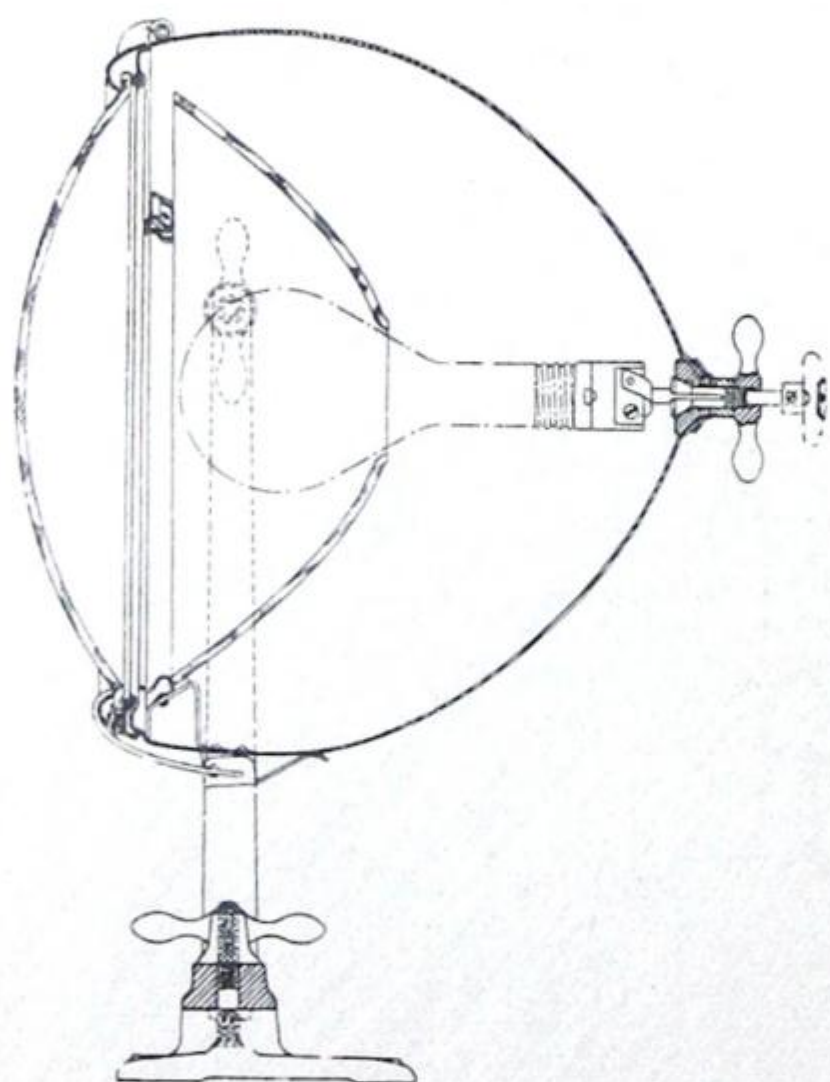


Plan View of Base

(K-3758024)

Fig. 25

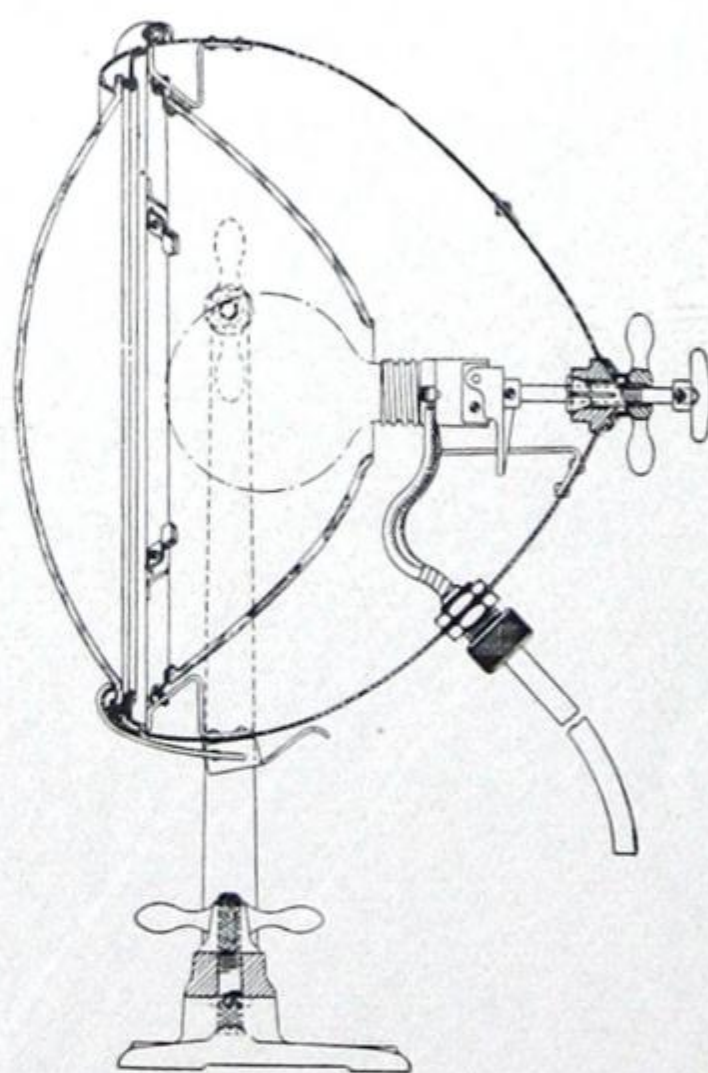
Dimensions of Type L-30-B



(P-3758405)

Fig. 23

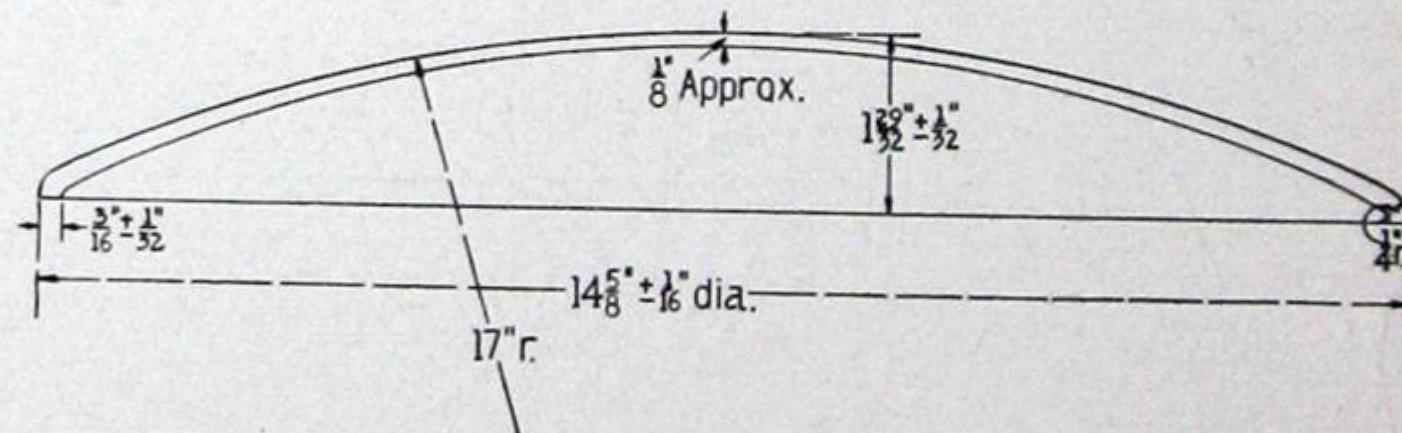
Cross Section of Type L-30-A,
with 500-watt, PS-40 General-
service Lamp



(P-3758081)

Fig. 24

Cross Section of Type L-30-B,
with 500-watt, G-40 Flood-
lighting Lamp



(M-3758336)

Fig. 26

Dimensions of Color Plates
for Types L-30-A and -B

TYPES L-31-A AND L-31-B

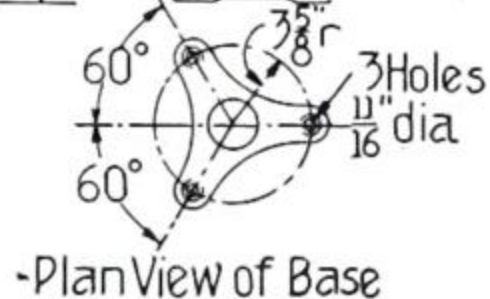
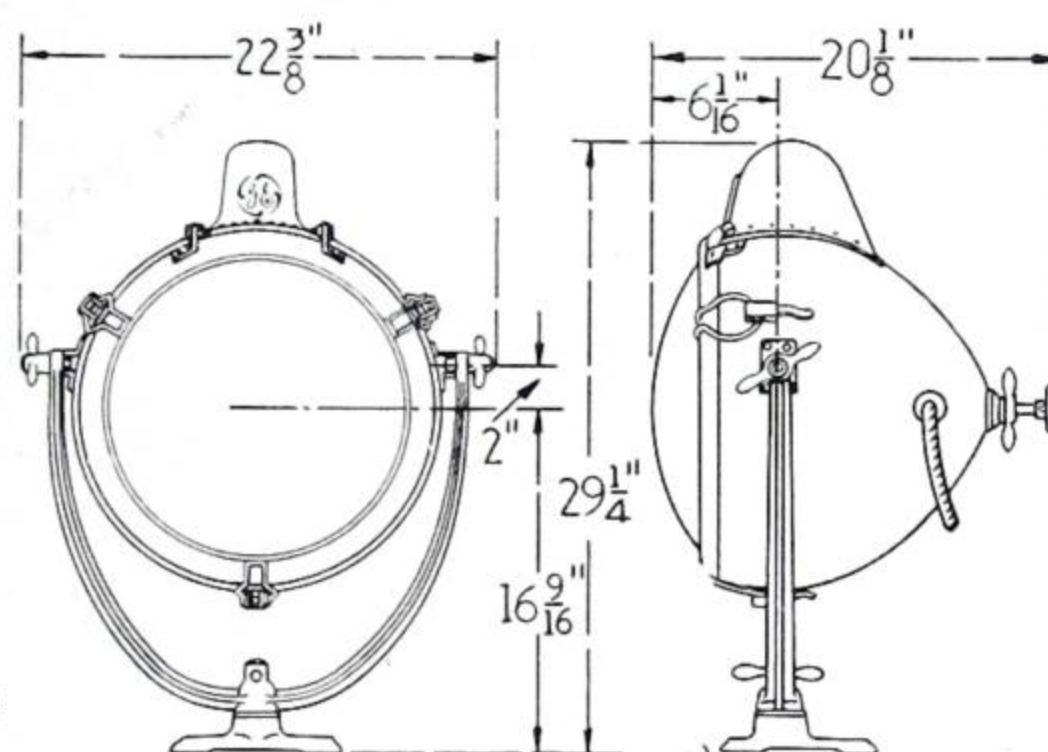
The Type L-31-A projector is designed primarily for use with a 1000-watt general-service lamp, and the Type L-31-B for use with a 1000-watt floodlighting lamp. The L-31-A is suitable for a working distance up to 175 feet; the L-31-B, up to 800 feet. Practically any type of light distribution can be obtained with the proper lens and reflector combination.



(Photo No. 716582)

Fig. 27

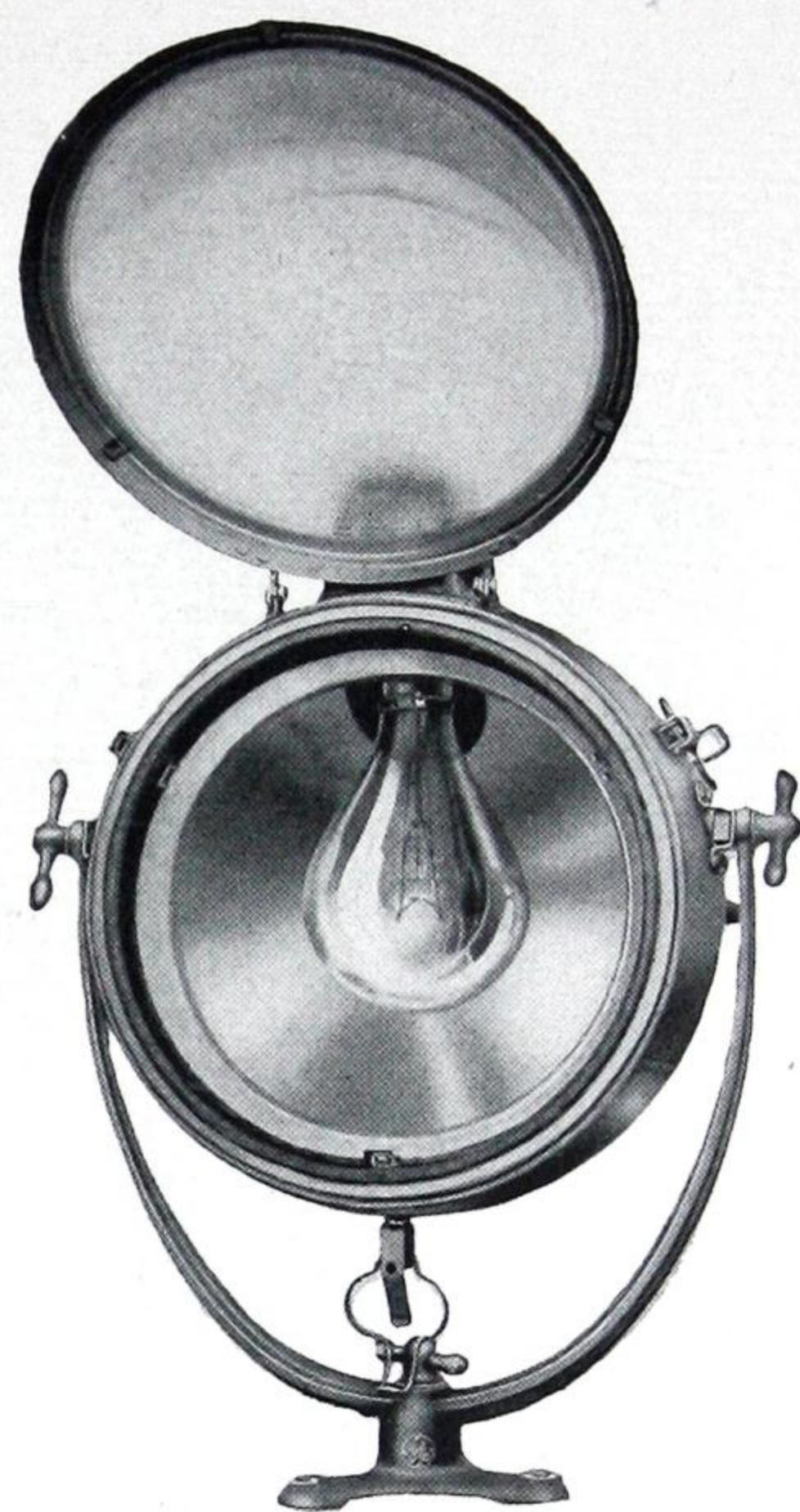
Front View of Type L-31-A, with Clear Plain Lens and 1000-watt PS-52 General-service Lamp



(K-3758025)

Fig. 28

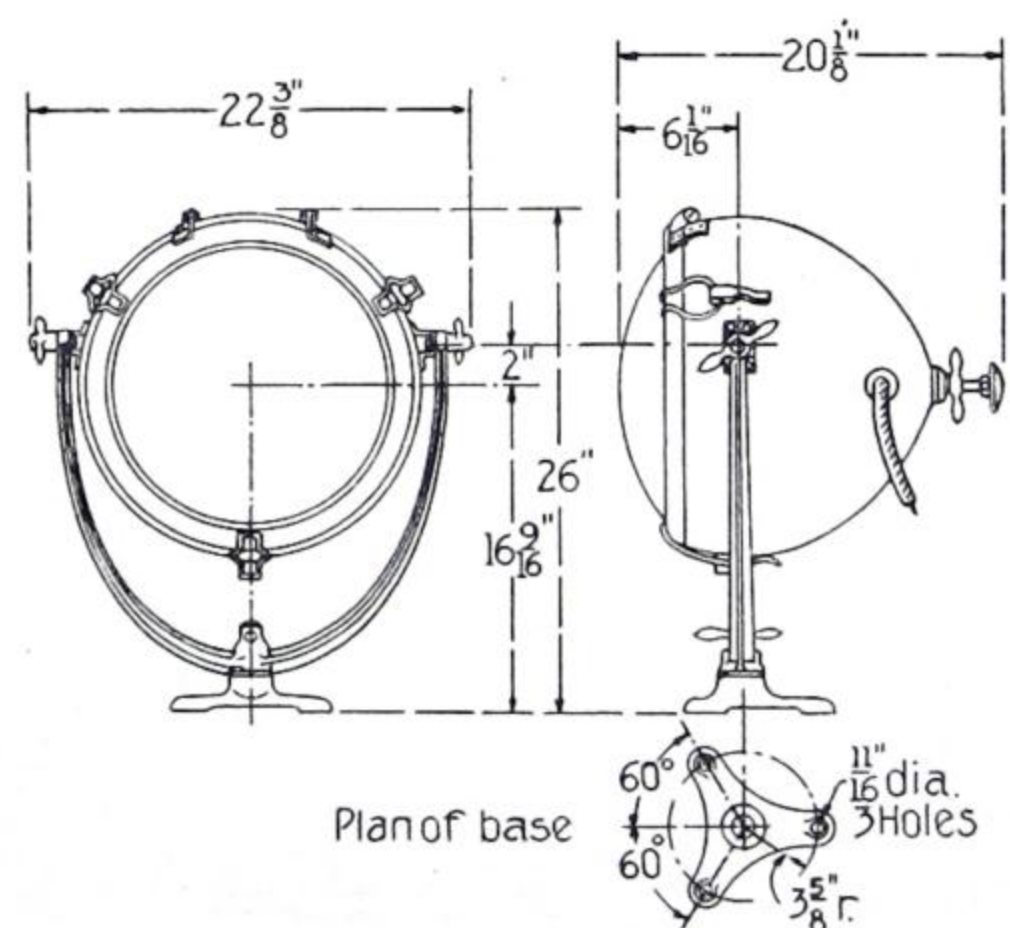
Dimensions of Type L-31-A



(Photo No. 716269)

Fig. 29

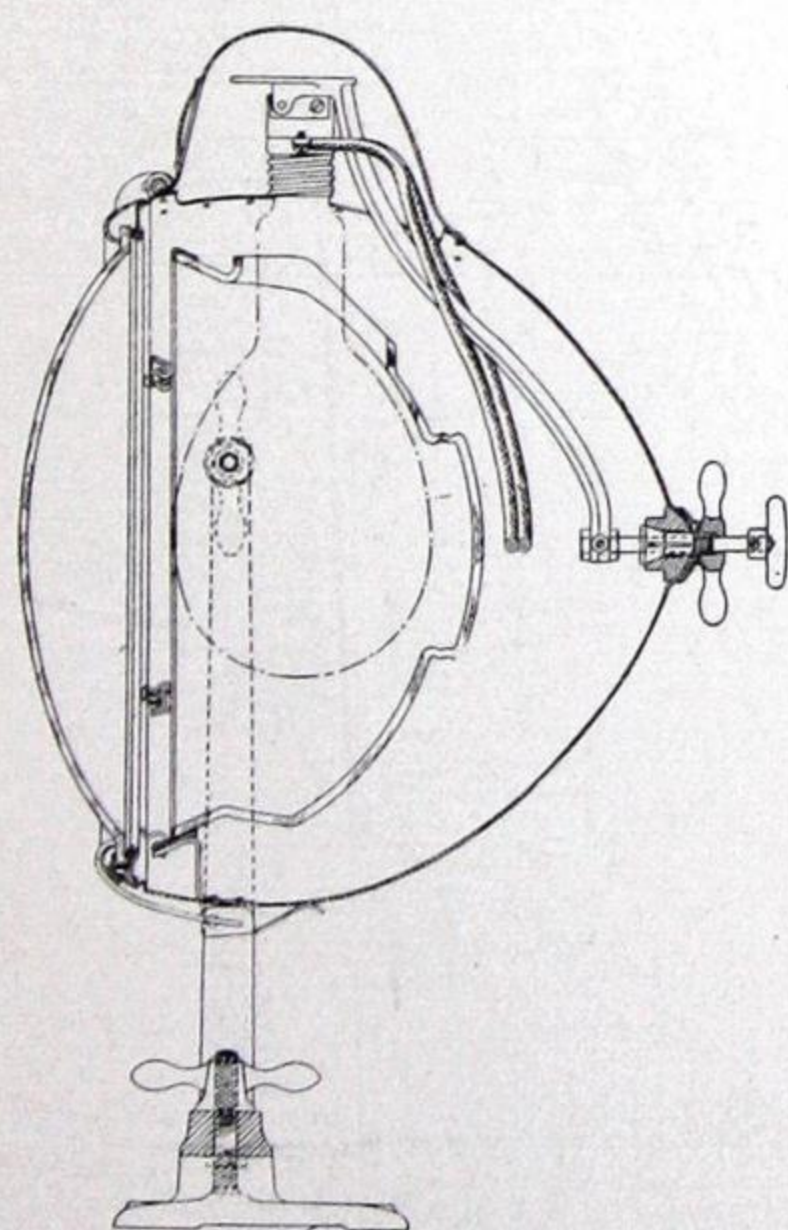
Interior View of Type L-31-A, with 1000-watt PS-52 General-service Lamp



(K-3758449)

Fig. 32

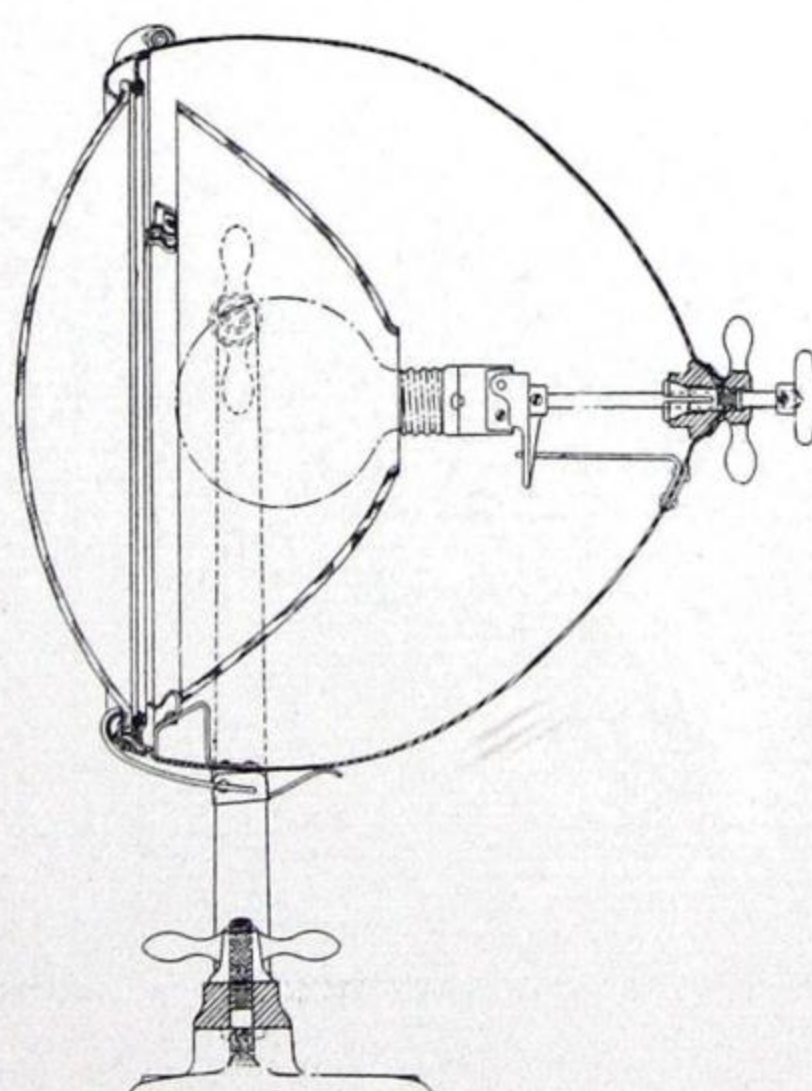
Dimensions of type L-31-B



(P-3758693)

Fig. 30

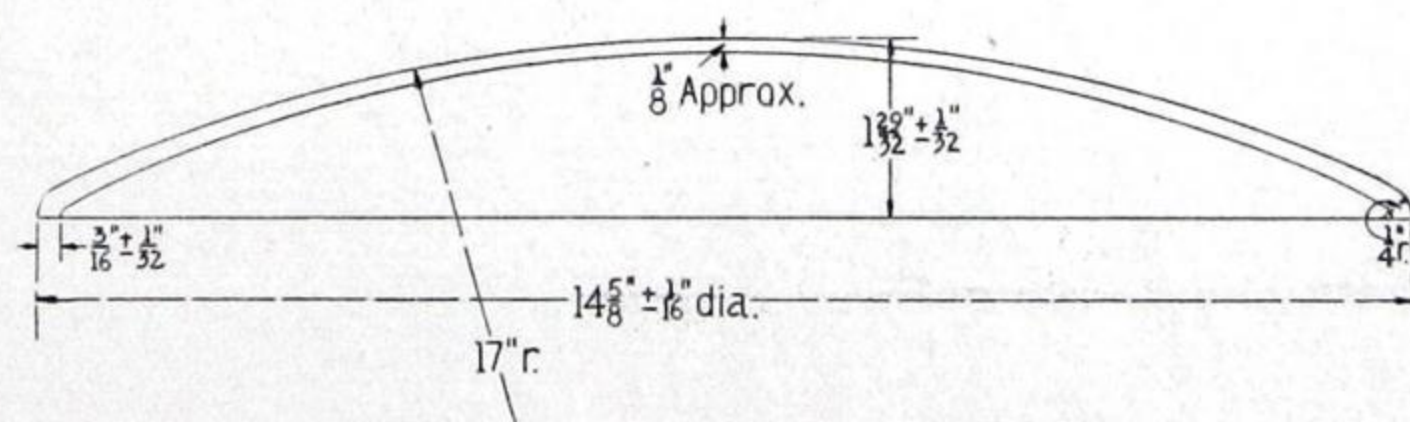
Cross Section of Type L-31-A with 1000-watt, PS-52 General-service Lamp



(P-3758406)

Fig. 31

Cross Section of Type L-31-B with 1000-watt, G-40 Floodlighting Lamp



(M-3758336)

Fig. 33

Dimensions of Color Plates for Types L-31-A and -B

TYPES L-24-A AND L-24-B

For Railroad Classification Yards and Other Large-area Lighting



(Photo No. 715409)

Fig. 34

Type L-24-A, with Stippled Lens



(Photo No. 715614)

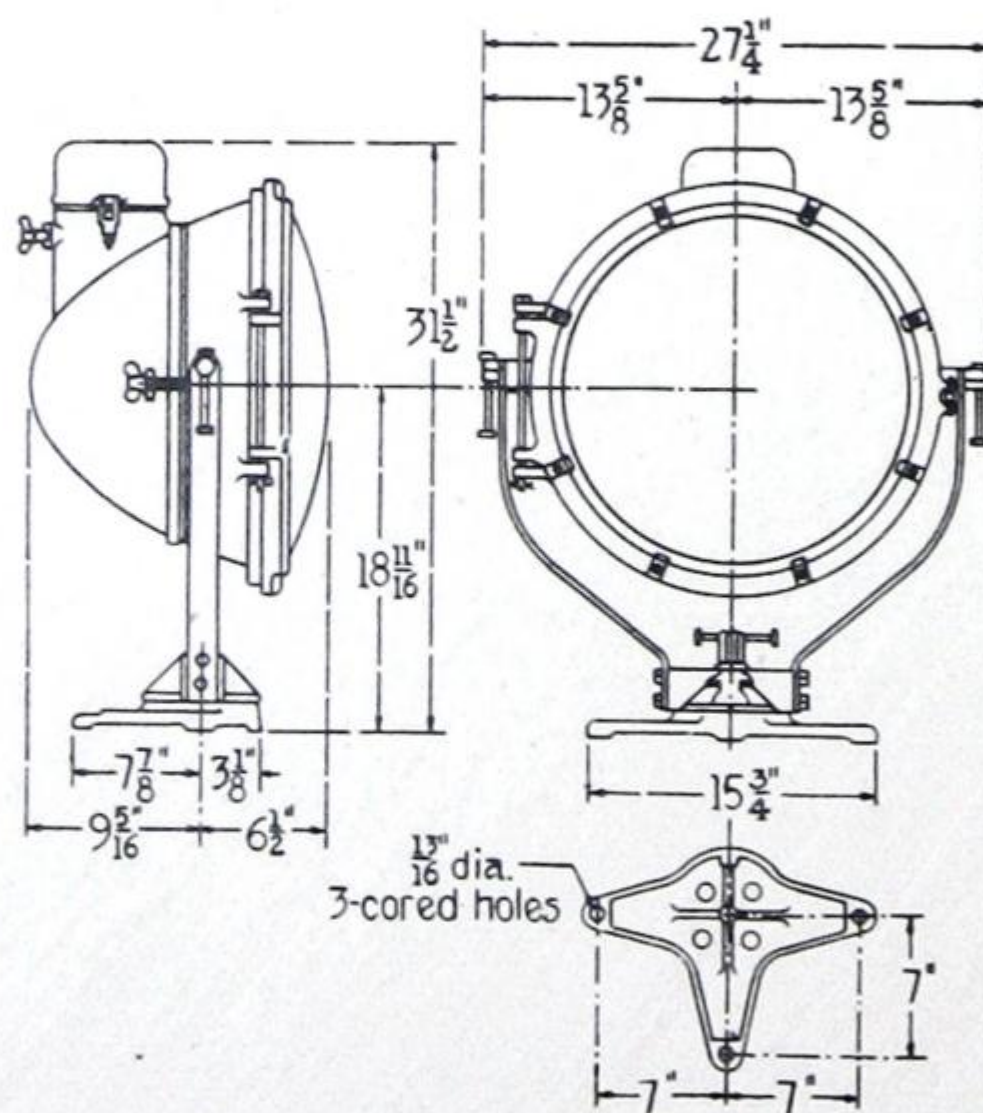
Fig. 35

Type L-24-B, with Visor

The Type L-24-A projector is designed for use with 1000- and 1500-watt general-service lamps, and the Type L-24-B for use with the 1000-watt floodlighting lamp. The L-24-A projector is suitable for working distances up to 1500 feet and the L-24-B up to 2000 feet. Practically any type of light

distribution can be obtained with the proper lens.

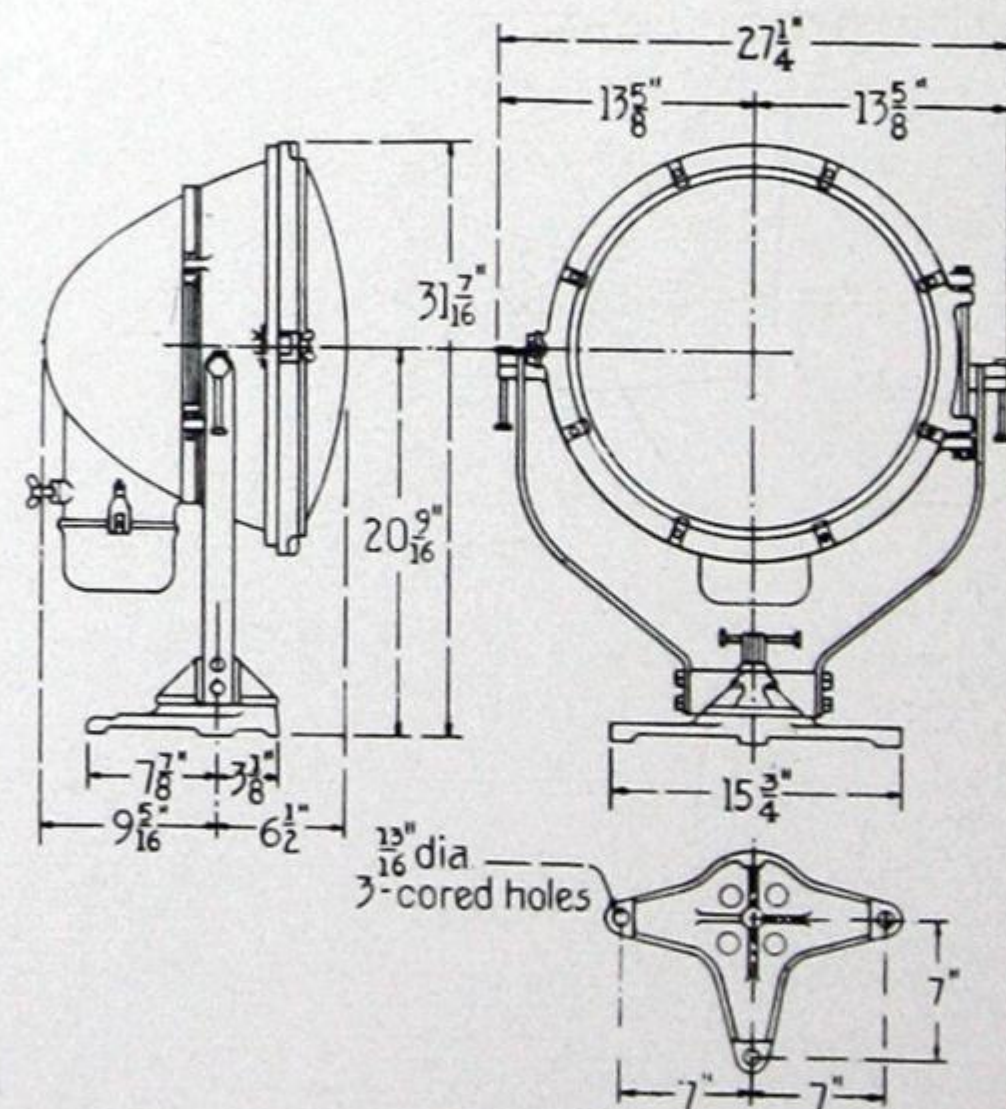
These projectors differ from the Types L-29-A, L-29-B, L-30-A, L-30-B, L-31-A, and L-31-B, shown on the preceding pages, in having cast-aluminum casings instead of drawn-copper. They possess all the main advantages of these other types.



(K-3758378)

Fig. 36

Dimensions of Type L-24-A



(K-3758379)

Fig. 37

Dimensions of Type L-24-B

TYPES L-29-A AND -B, L-30-A AND -B, AND L-31-A AND -B



(Photo No. 281205)

Fig. 38

Side View of Types L-29-A and -B
with Clear Plain Lens



(Photo No. 281202)

Fig. 39

Side View of Types L-30-A and L-31-B
with Clear Lightly Stippled Lens



(Photo No. 716583)

Fig. 40

Side View of Type L-31-A
with Clear Plain Lens

ADVANTAGES

1. Only *three sizes of casings, necessary for all types of light distributions with lamps from 200 to 1000 watts, either general-service or flood-lighting types.

2. All casings of nonferrous metal. All parts nonrusting.

3. Excellent heat radiation due to non-ferrous casing, and permitting small dimensions.

4. Light in weight because of the material used in construction.

5. Asbestos gasket used which does not have disadvantages of vulcanizing or carbonizing as in the case of rubber, resulting in extremely long life, and weatherproof qualities.

6. Ease and accuracy in focusing through the use of unique universal-focusing mechanisms.

7. Simple and economical mounting possible because of small three-point base design and swivel mounting. Installation of projector and orienting of beam facilitated.

8. All unit totally enclosed, thereby preventing dust and dirt from entering and impairing efficiency.

9. Minimum maintenance and maximum efficiency on account of the use of heat-resisting clear and semi-heat-resisting colored lenses and silvered-glass reflectors with copper protective backing.

10. The following lenses are available. Clear lenses with plain, lightly stippled, heavily stippled, and spreadlight distribution; colored lenses giving plain and heavily stippled distribution. All clear lenses are heat-resisting glass. All colored lenses are of semi-heat-resisting glass.

11. Color plates of red, amber, blue, or green in two sizes are available for use with projectors equipped with clear lenses.

12. All reflectors are of glass, silver-plated, and protected by copper backing. Reflectors of the same size are interchangeable. The use of glass reflectors provides the most efficient type of projector available. They are much more efficient than aluminum or chromium-plated reflector units.

* A fourth casing, of cast aluminum, which takes the 1500-watt lamp, is used for the L-24-A and L-24-B projectors.

TYPES L-29-A AND -B, L-30-A AND -B, AND L-31-A AND -B

The following may be used as specifications:

CASING AND DOOR FRAMES

Projectors are built with a formed, single-piece, sheet-copper casing and single-piece door of the same material. Rear of casing is formed hemispherically in shape and is provided with clearance hole for brass socket-holder rod which is part of focusing mechanism. Sheet-copper door is held to casing with hard-copper hinges at top. Door hinges are slotted to permit sufficient lateral movement of glass upon asbestos gasket held in groove, in front of casing, thus obtaining a tight seal. Lens is loosely held within door by means of four punched clips in accordance with common automobile-headlight practice. Door and lens are clamped with equalized pressure (flat surface of glass engaging gasket) against casing by means of lever-actuated, phosphor-bronze spring clamps. Reflectors are held by supporting rings attached to punched brackets, each fitted with asbestos cushions to prevent breakage.

FOCUSING MECHANISM

TYPES L-29-A AND -B, L-30-A AND -B, AND L-31-B

Mechanism, which is universally adjustable, consists of clamping chuck or collet similar to that used on lathes. Socket-holder rod passes through split collet which is threaded at outer end and projects through casing. A T-shaped brass clamping nut engages threaded end of collet and forces a hemispherical friction cup of sheet brass against back of casing. Socket-holder rod is provided with flat, circular, cast-brass handle used for adjusting socket and lamp to any required position. Horizontal movement is effected by slipping socket-holder rod through collet after backing off clamping nut approximately one-half to one turn, and reclamping in required position.

TYPE L-31-A

Mechanism similar to that previously described except extension bracket is connected to adjusting rod by means of a screw and lock nuts. This bracket carries a skeleton-base mogul socket.

MOUNTING

TYPES L-29-A AND -B

The projector is supported by means of a universally adjustable, swiveled, crowfoot base of cast bronze.

TYPES L-30-A AND -B, AND L-31-A AND -B

The projector is supported on a swiveled trunnion bracket of bronze with a brass crowfoot base permitting universal adjustment of beam.

REFLECTORS

Reflectors are of silvered glass protected by a coating of electrolytically deposited copper:

TYPES L-29-A AND -B

(a) Paraboloidal type of reflector $10\frac{7}{16}$ inches in diameter, producing a beam of approximately 27 degrees with the 200-watt general-service lamp.

(b) Paraboloidal type of reflector $10\frac{7}{16}$ inches in diameter, producing a beam of approximately 18 degrees with the 250-watt floodlighting lamp.

TYPES L-30-A and -B

(a) Paraboloidal type of reflector $14\frac{3}{4}$ inches in diameter, producing a beam of approximately 12 degrees with the 500-watt G-40 floodlighting lamp, and approximately 23 degrees with the 500-watt general-service lamp.

(b) One-piece sectional glass reflector $14\frac{3}{4}$ inches in diameter, producing a beam of approximately 50 degrees with the 500-watt G-40 floodlighting lamp, and approximately 60 degrees with the 500-watt general-service lamp.

TYPES L-31-A and -B

(a) Combination paraboloidal and spherical reflector $14\frac{3}{4}$ inches in diameter, producing a beam of approximately 25 degrees with the 1000-watt general-service lamp.

(b) Paraboloidal type of reflector $14\frac{3}{4}$ inches in diameter, producing a medium-angle beam of approximately 12 degrees with the 1000-watt floodlighting lamp.

LENSES

Lenses are of heat-resisting glass, which must withstand extremes of temperatures such as heating in boiling water to 212 deg. F. followed by plunging into ice water at 32 deg. F. and vice versa.

DIAMETERS

(A) Types L-29-A and -B, $11\frac{1}{4}$ inches.

(B) Types L-30-A and -B, and L-31-A and -B, $15\frac{3}{4}$ inches.

CLEAR LENSES

Clear lenses are available in the following designs: plain, lightly stippled, heavily stippled, and spreadlight.

COLOR LENSES

Colored lenses are available in plain and heavily stippled designs and in the following colors: red, amber, blue, and green.

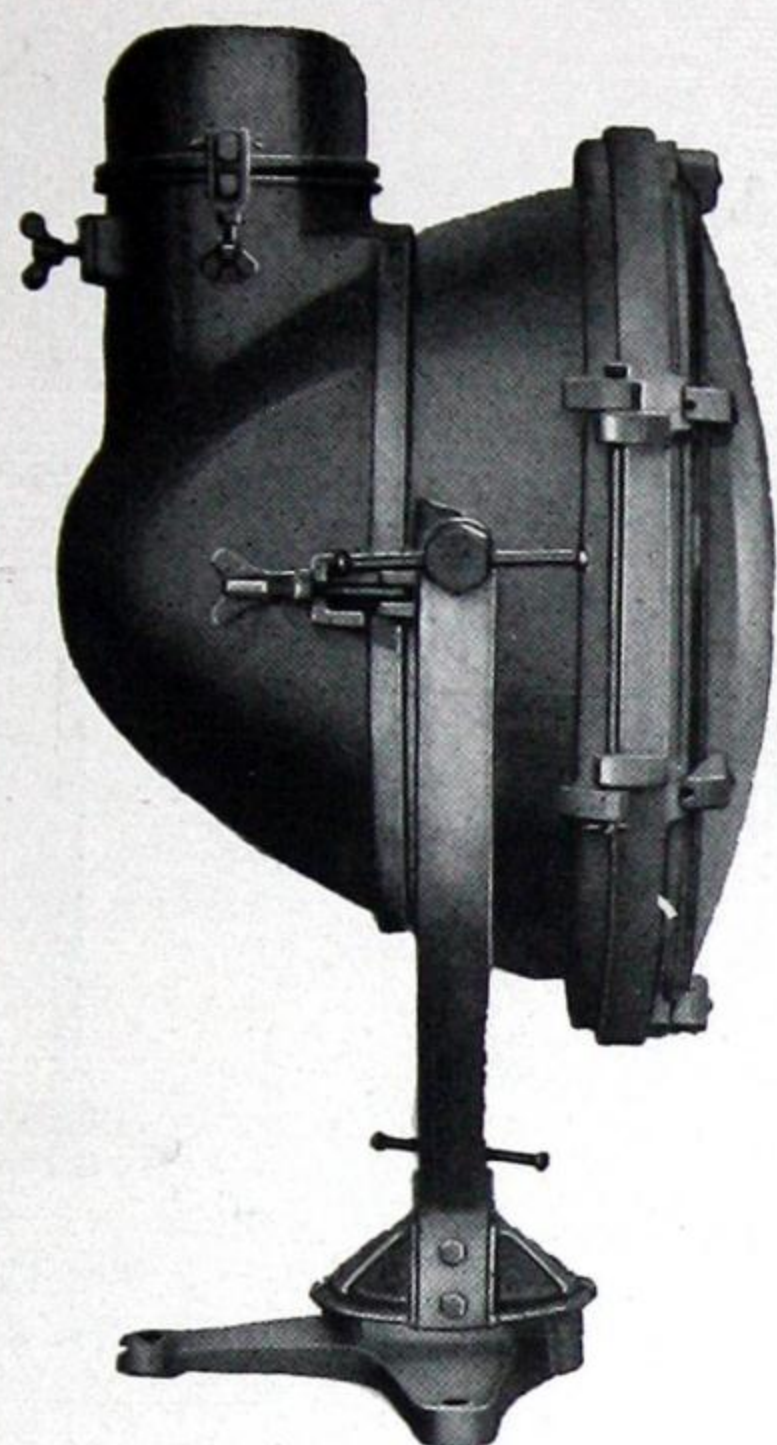
COLOR PLATE INSERTS

Color plates are available in two sizes and four colors (red, amber, blue, and green)—one size suitable for inserting in the Types L-29-A and -B and the other in the Types L-30-A and -B, and L-31-A and -B projectors equipped with clear lenses. Clips for holding these plates in position are mounted in all projectors as standard equipment.

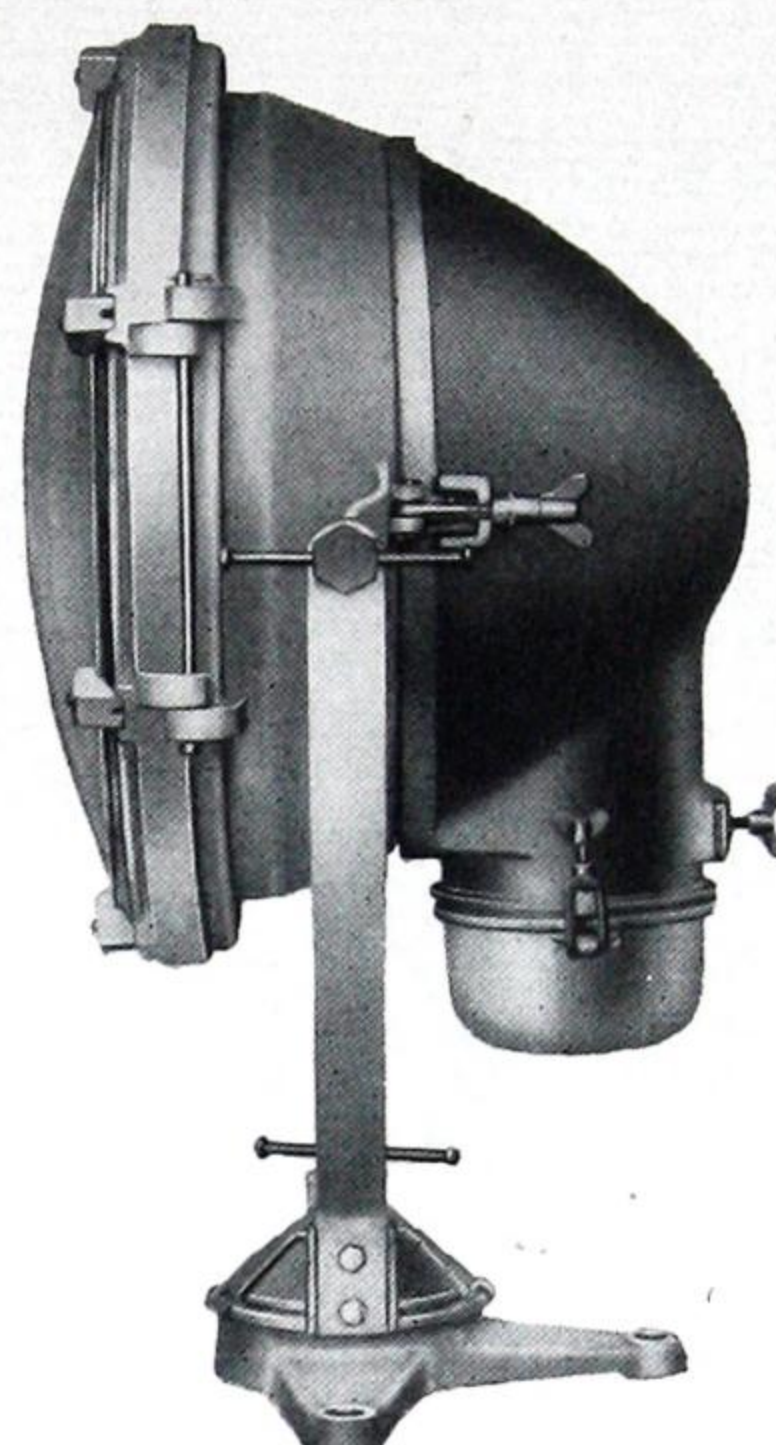
FINISH

All parts natural finish acid-dipped. Casings and doors are lacquered.

TYPES L-24-A AND -B



(Photo No. 715615)

Fig. 41
Type L-24-A
(Side View)

(Photo No. 715613)

Fig. 42
Type L-24-B
(Side View)

CASING AND DOOR FRAMES

Units have a cone-shaped two-part casing of aluminum alloy, a hinged front door, and a hinged rearward section for relamping or cleaning from the back of the projector without disturbing direction of beam. All screws and bolts are of non-rusting material. All joints are made weather-proof by the use of asbestos gaskets.

The Types L-24-A and -B are totally enclosed and may be operated with 750-, 1000-, or 1500-watt lamps.

FOCUSING MECHANISM

Mechanism is of a split ball-and-socket type with a retarding spring yoke and single-clamping screw, which allows movements of socket in any direction, thus permitting accurate focusing of the lamps. The retarding spring prevents lamp breakage and further facilitates focusing. The Type L-24-A projectors have a lamp socket at the top arranged for base-up-burning lamp, while the Type L-24-B projectors have the lamp socket at the bottom arranged for base-down-burning lamp.

MOUNTING

Unit is mounted on a trunnion bracket and swivel base which are hot-dip galvanized. This method of mounting allows the adjustment of the beam in any direction. Such adjustments are locked in place by means of vise handles. The base is of a crowfoot design, and the dimensions are in accordance with latest railway specifications prepared by the A.R.E.E. This design allows mounting the projector close to the edge of the tower or platform.

REFLECTORS

These units are provided with two reflectors. The front one, of parabolic shape, is attached to the front stationary part of the projector. The rear one, of shallow parabolic and spherical sections, is attached to the movable rear door. These reflectors are of blown glass, silvered and hermetically sealed by a coating of electrolytically deposited copper which entirely envelops the outer surface of the mirror. Such a design of composite reflectors gives a greatly increased value of central beam candle-power and beam lumens over other existing designs. Reflector diameter is $18\frac{1}{2}$ inches where the outer section is fastened to the projector casing.

LENSES

Lenses are of heat-resisting glass which must withstand extremes of temperature such as heating in boiling water at 212 deg. F. followed by placing in ice water at 32 deg. F. or vice versa. They are $19\frac{1}{16}$ inches in diameter and are available only in clear plain, clear lightly stippled, and clear 50-deg. spreadlight designs.

FINISH

Natural finish on casing and other parts. Hot-dip galvanized finish on trunnion and base.

All projectors are equipped with 8 feet of cable.

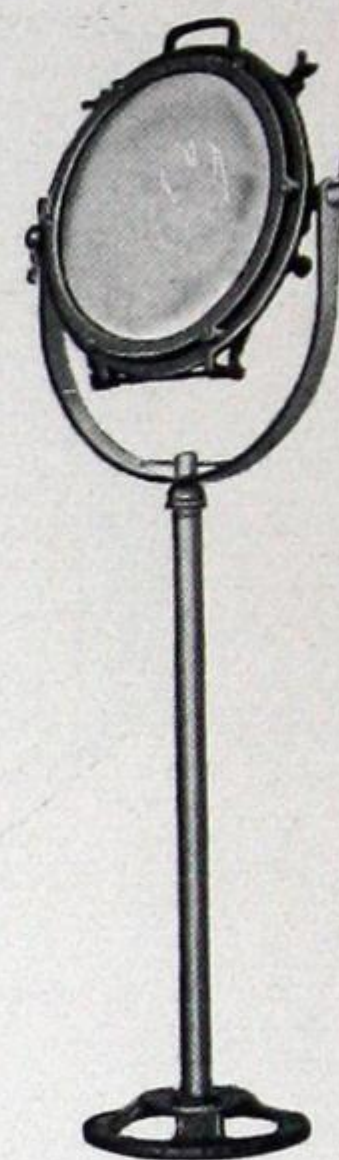
TYPE L-1 PROJECTOR



(Photo No. 265326)
Fig. 43
Cat. No. 166012



(Photo No. 265326)
Fig. 44
Cat. No. 189962



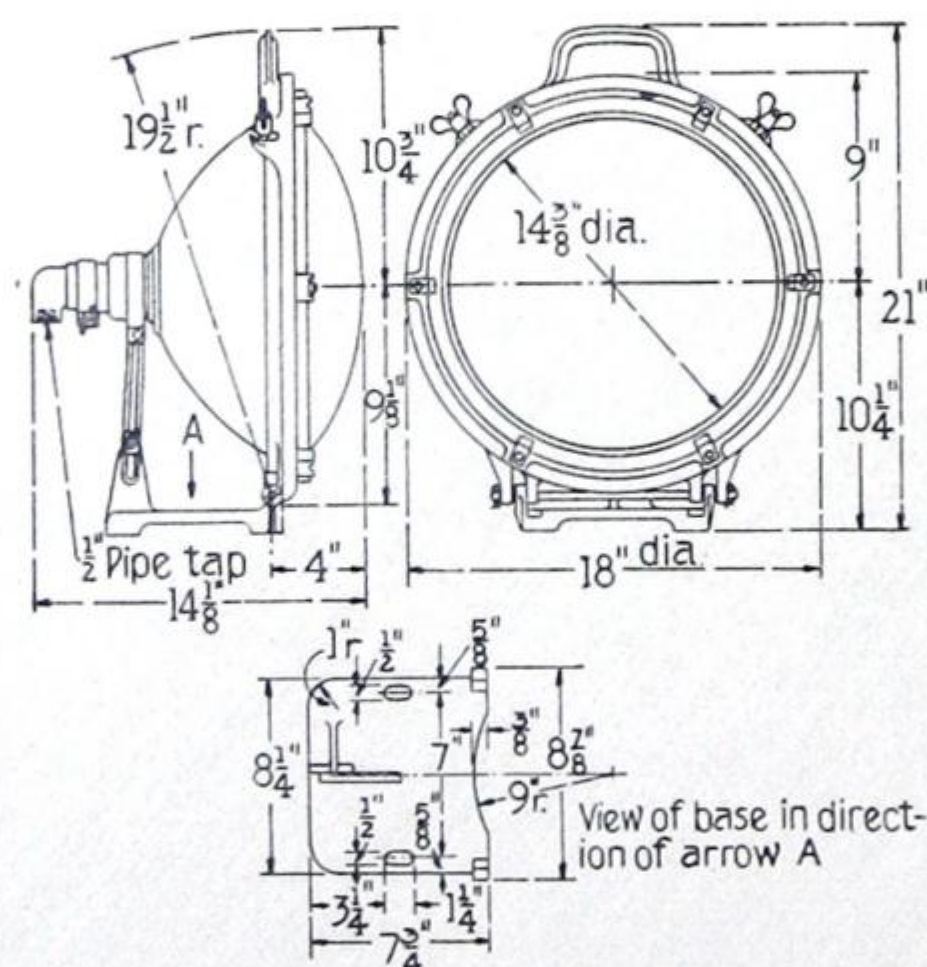
(Photo No. 265326)
Fig. 45
Cat. No. 195852

The Type L-1 projector consists essentially of a 16-in. aluminum parabolic reflector highly polished. This reflector is held by screws to a cast-iron frame. To this frame is hinged the door-lens frame made of cast iron, held closed by two hinged bolts and wing nuts. A sponge rubber gasket is placed between the lens and the door frame, held in place by shellac making the projector weatherproof. The cast-iron adjustable socket is held in place by a clamp and wing nut.

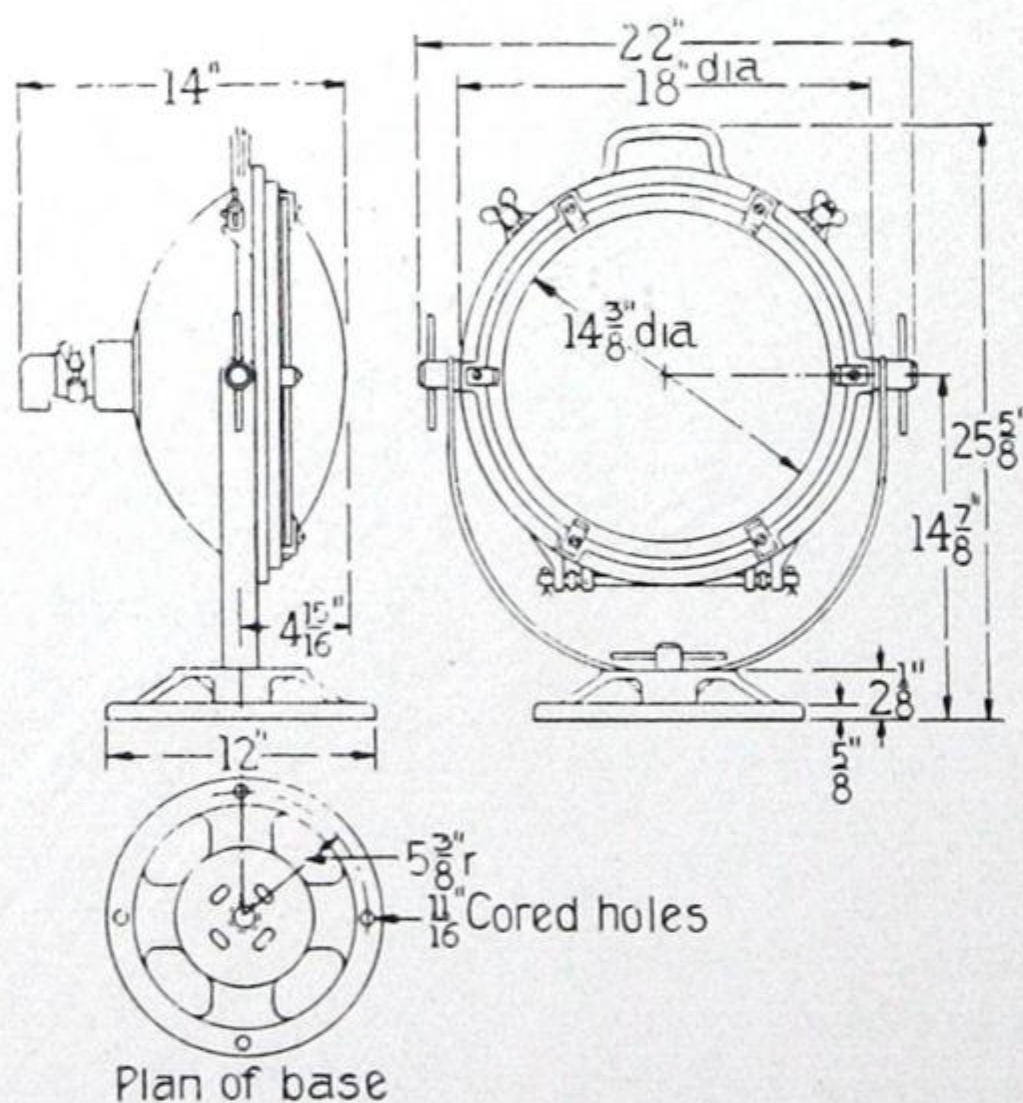
The projector is furnished mounted in one of three ways:

1. Hinged to a flat base.
2. On trunnion fastened to swivel base. Wing nuts furnished for adjusting.
3. On trunnion fastened to pipe stand which is fastened to cast-iron base. Wing nuts furnished for adjusting.

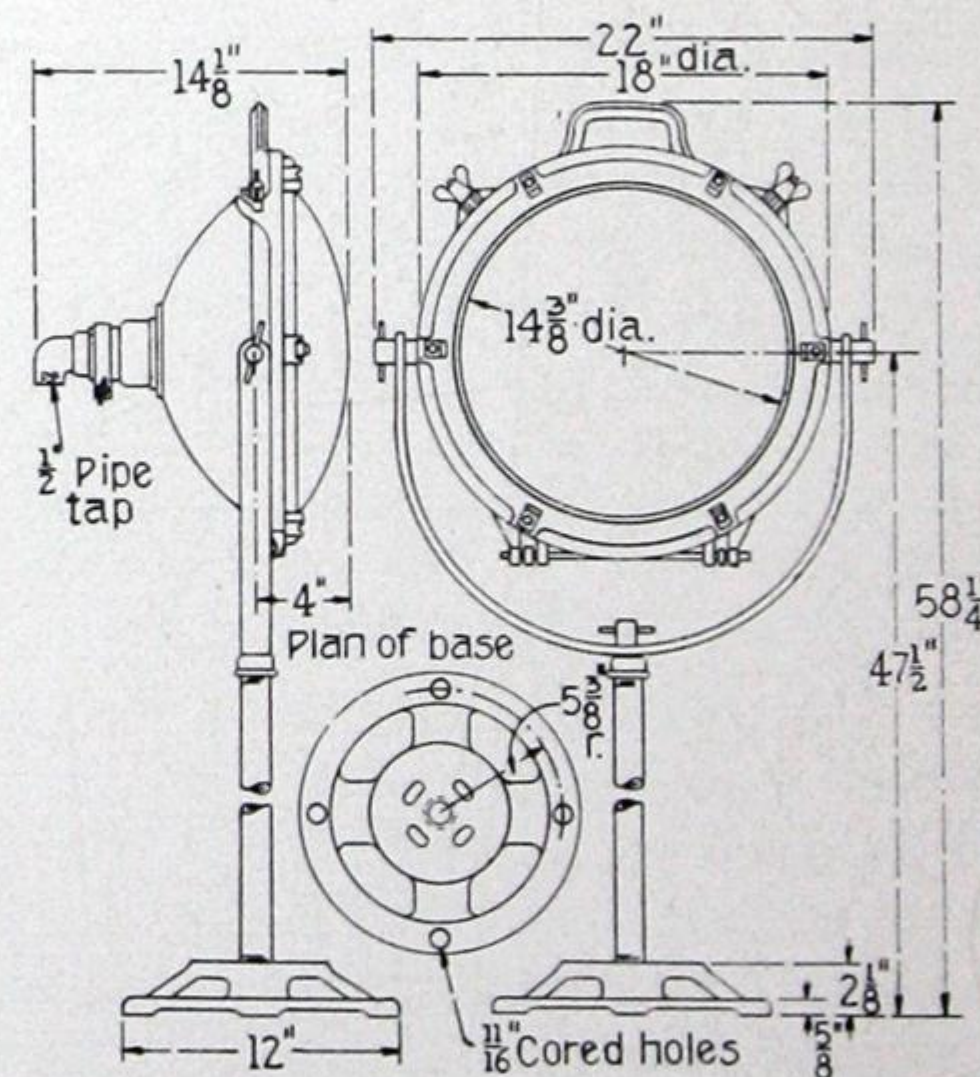
Two coats of black japan finish are given to all exterior parts. Best results are obtained with the 500-watt floodlighting lamp.



(Photo No. 716266)
Fig. 46
Type L-1



(Photo No. 716264)
Fig. 47
Type L-1



(Photo No. 716267)
Fig. 48
Type L-1

TYPE L-9



(Photo No. 275678)
Fig. 49
Cat. No. 289487



(Photo No. 265326)
Fig. 50
Cat. No. 195863



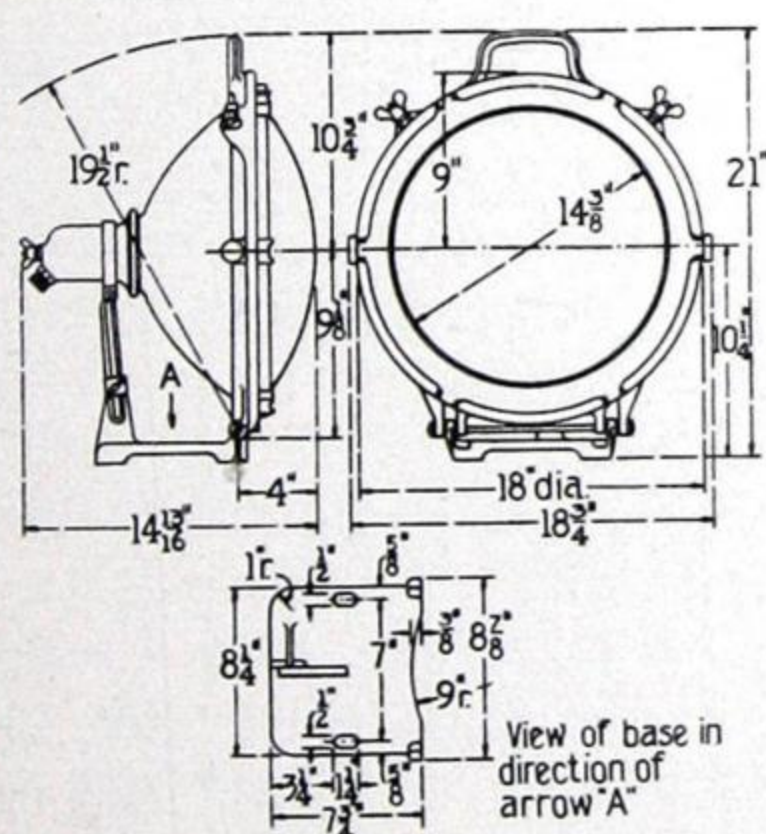
(Photo No. 265326)
Fig. 51
Cat. No. 195864

This projector is similar to the L-1 except it is equipped with a glass reflector, silvered and coppered, instead of aluminum. The copper backing on the glass reflector is strong enough to form a protective casing; thus an outer sheet-metal housing is not necessary. The beam angle

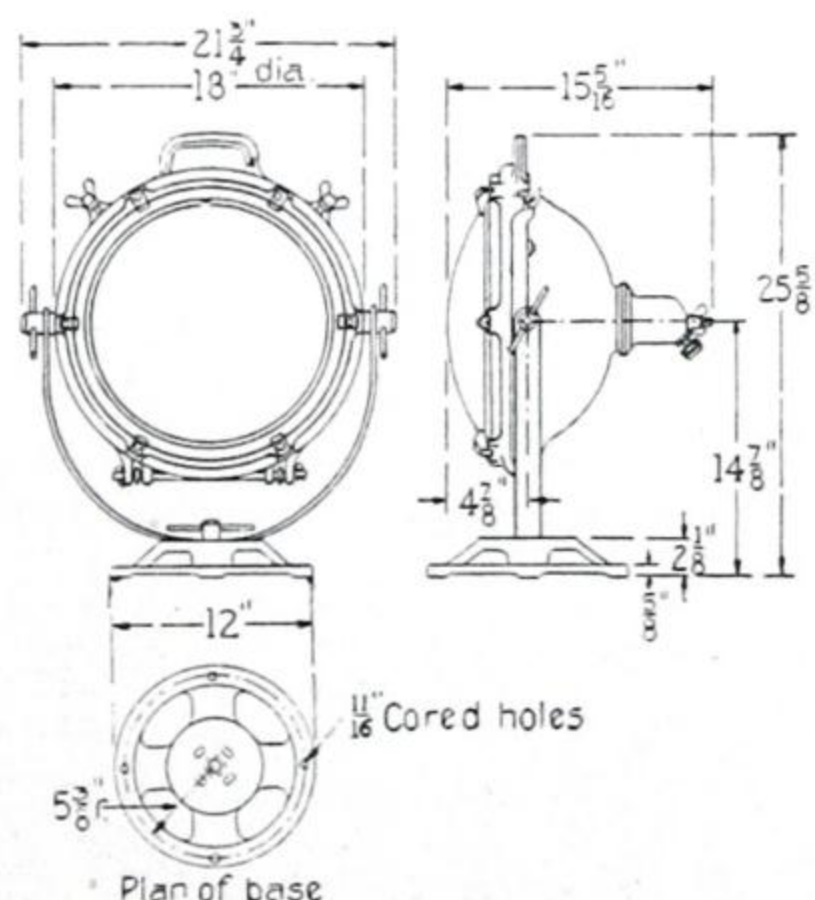
with clear lens is a little wider, being 12 degrees.

Best results are obtained with the 500-watt floodlighting lamp.

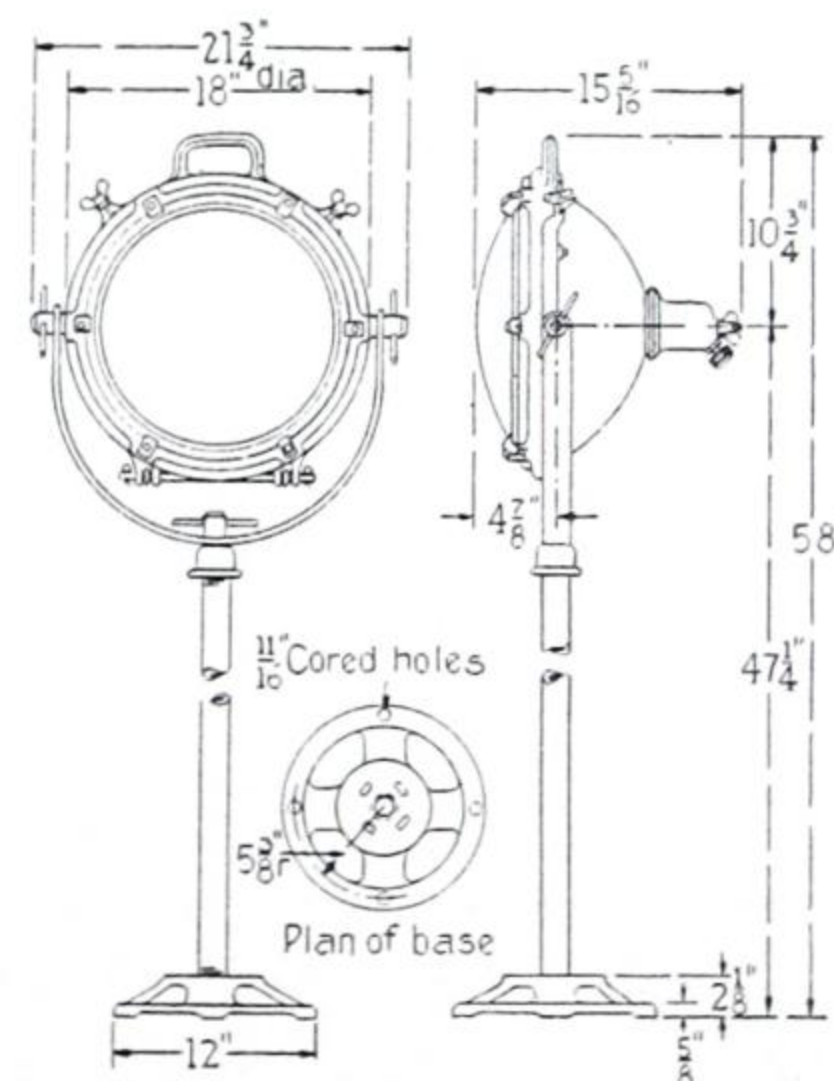
Two coats of black japan finish are given to all external parts.



(K-3758311)
Fig. 52
Type L-9

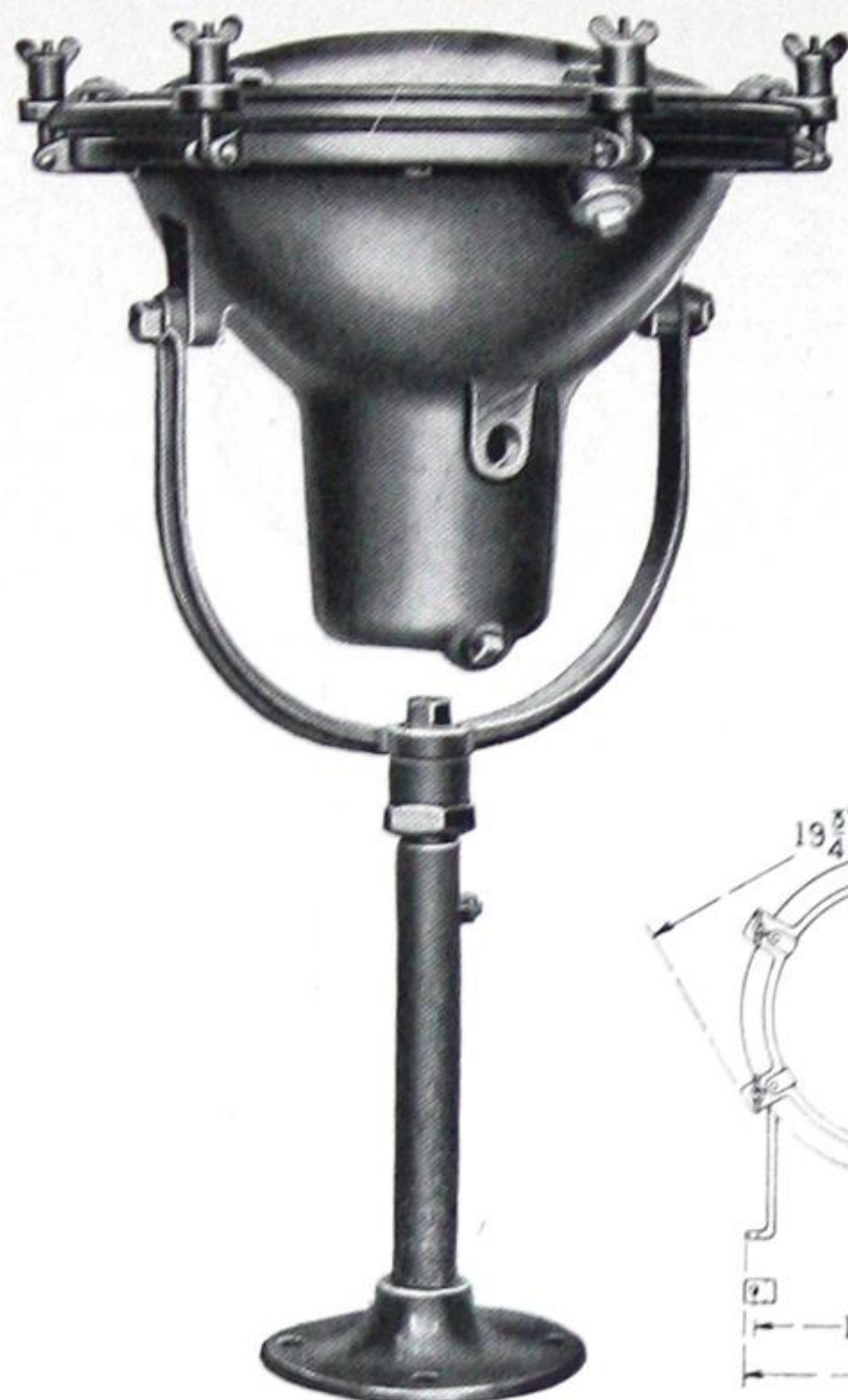


(Photo No. 716262)
Fig. 53
Type L-9

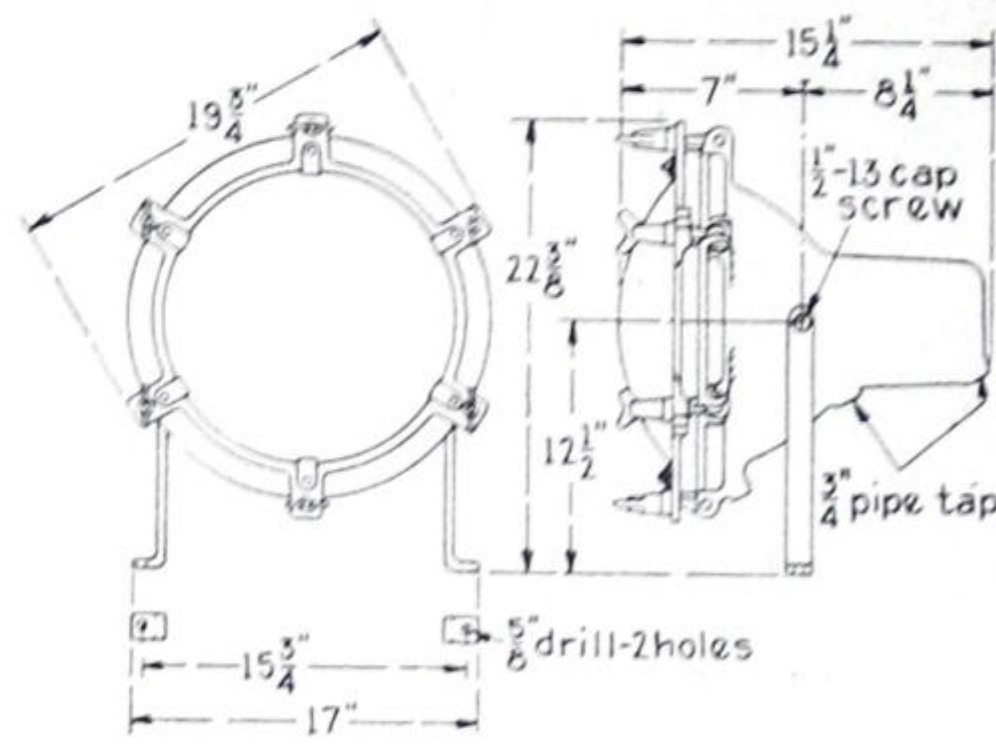


(Photo No. 716263)
Fig. 54
Type L-9

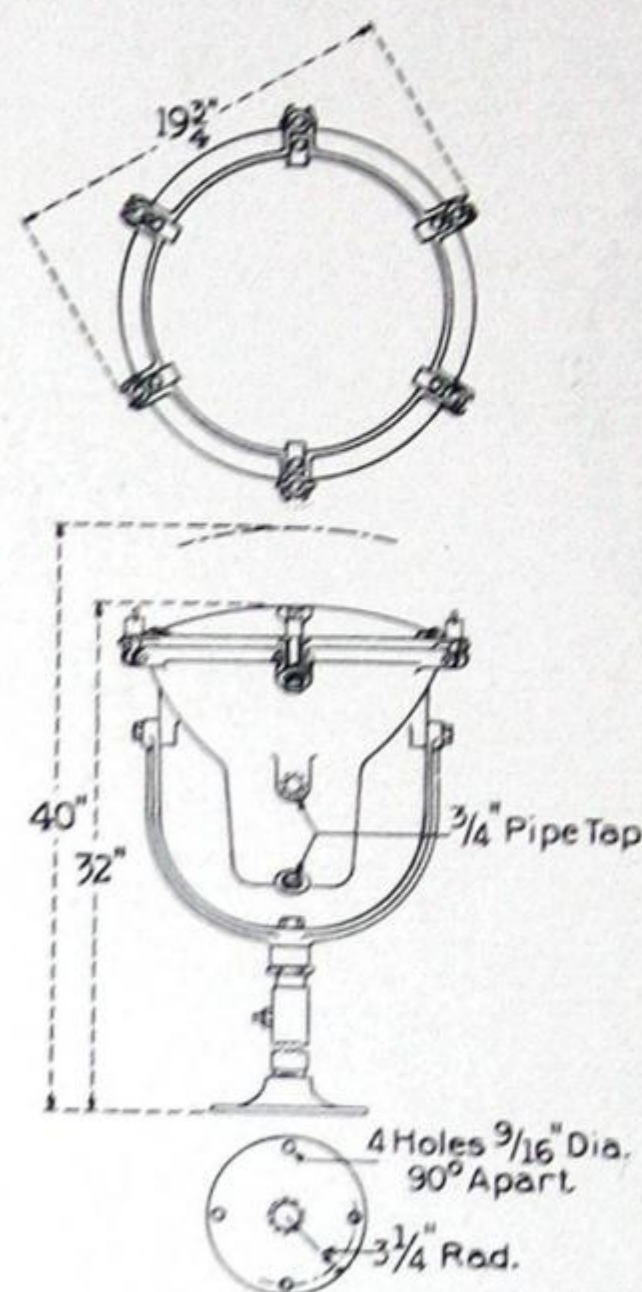
TYPE L-23 Submersible Fountain Type



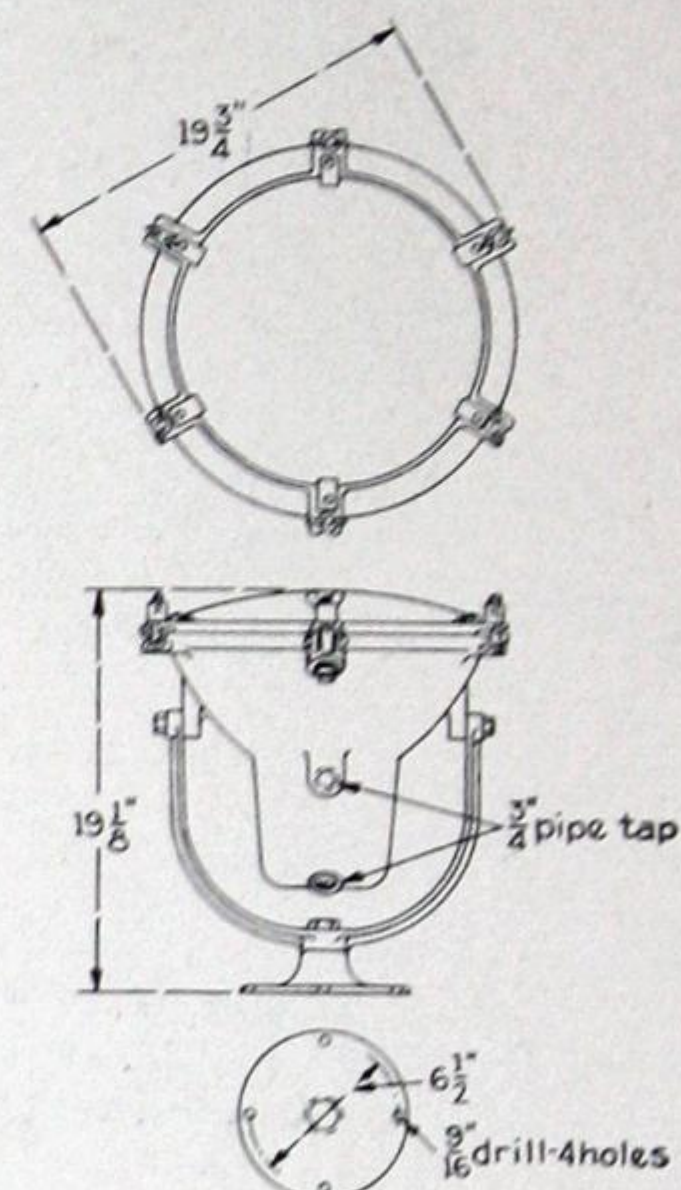
(Photo No. 277022)
Fig. 55
Cat. No. 3049414



(K-3740890)
Fig. 56
Type L-23 with Bracket for
Special Mounting



(K-3717123)
Fig. 57
Type L-23 with Trunnion Bracket
and Servicing Stand



(Photo No. 716261)
Fig. 58
Type L-23 with Trunnion
Bracket

*DESCRIPTION

This projector is constructed of nonferrous material throughout. The door frame, casing, and trunnion bracket, where used, are made of special aluminum alloy for fresh-water use. For salt-water use, a special projector, made of manganese bronze alloy better to resist corrosion, is available.

The projector can be furnished with two types of mounting. It can be supported by means of a trunnion bracket on a swivel base, or by means of a trunnion bracket, and swivel base with a servicing device.

This servicing device consists of a large brass tube that screws into a brass base plate; and a smaller tube, assembled to the trunnion bracket, which slides inside the larger tube. The smaller tube is slotted and fitted with three bayonet joints. These engage a stop screw which is assembled into the larger tube and projects inside it. This projector may be raised or lowered so that it can be lifted above the surface of the water in the fountain in order that the front door may be removed and the device serviced or relamped.

†The front-door glass is gasketed with rubber packing, and the door casting is gasketed against the casing.

The projector has a 3/4-in. pipe-tapped hole midway of the casing for a 3/4-in. pipe nipple through which the lead cable passes. A wiped joint can be made between the brass bushing and the lead cable.

The device is also provided with two other 3/4-in. tapped holes to which a drain pipe, which

may be a rubber hose or a flexible lead pipe, can be attached. The reason for the two holes is that when the projector is set with the beam in the vertical position, the bottom hole can be used for draining away any condensation which may occur inside the projector. This also permits atmospheric pressure always being maintained within the projector. If the projector is used with the beam horizontal or nearly so, the plug in the top hole can be removed and put into the bottom hole and the drain pipe can then be put into the hole from which the plug was removed. It is very advisable when installing these projectors to put the drain pipe in, because it is desirable that atmospheric pressure be maintained. Otherwise the heat from the lamp will change the density of the air inside the projector, and, when the lamp is turned off and the projector cools, there is a tendency toward a vacuum or, at least, a lower air pressure. This is likely to create a breathing effect and may, under some circumstances, cause water to enter the projector.

A sliding screw focusing mechanism is provided which allows the lamp to be moved along the axis of the reflector, either up or down, by pulling or pushing the bulb.

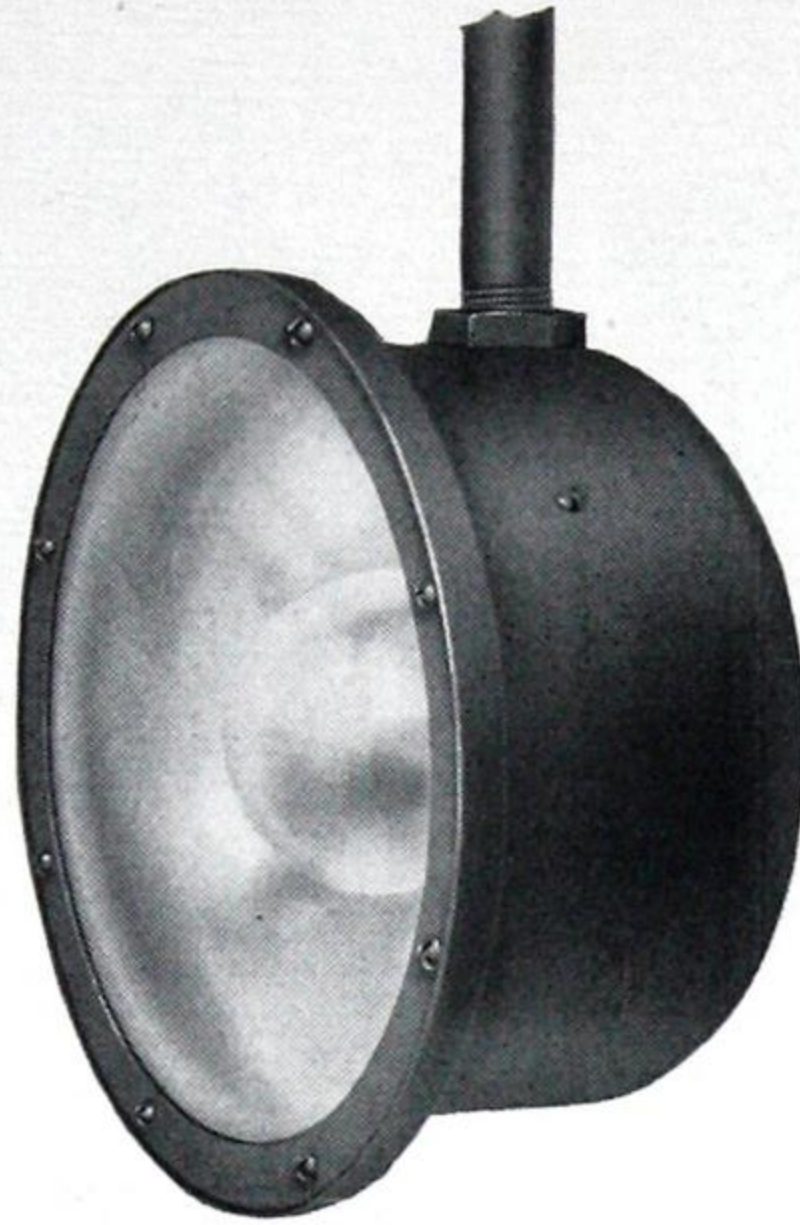
The 16-in. glass reflector is silver-plated and coated with electrolytically deposited copper.

Either the 500-watt or 1000-watt, 110-volt floodlighting lamp may be used. Water must be applied before projectors are lighted.

*Prices and other data are available at the nearest G-E sales office.

†Both clear-glass and colored-glass lenses are available for the Type L-23 projector.

TYPE L-33 SUBMERSIBLE FLOODLIGHT



(Photo No. 716570)

Fig. 59

Type L-33 Submersible Floodlight

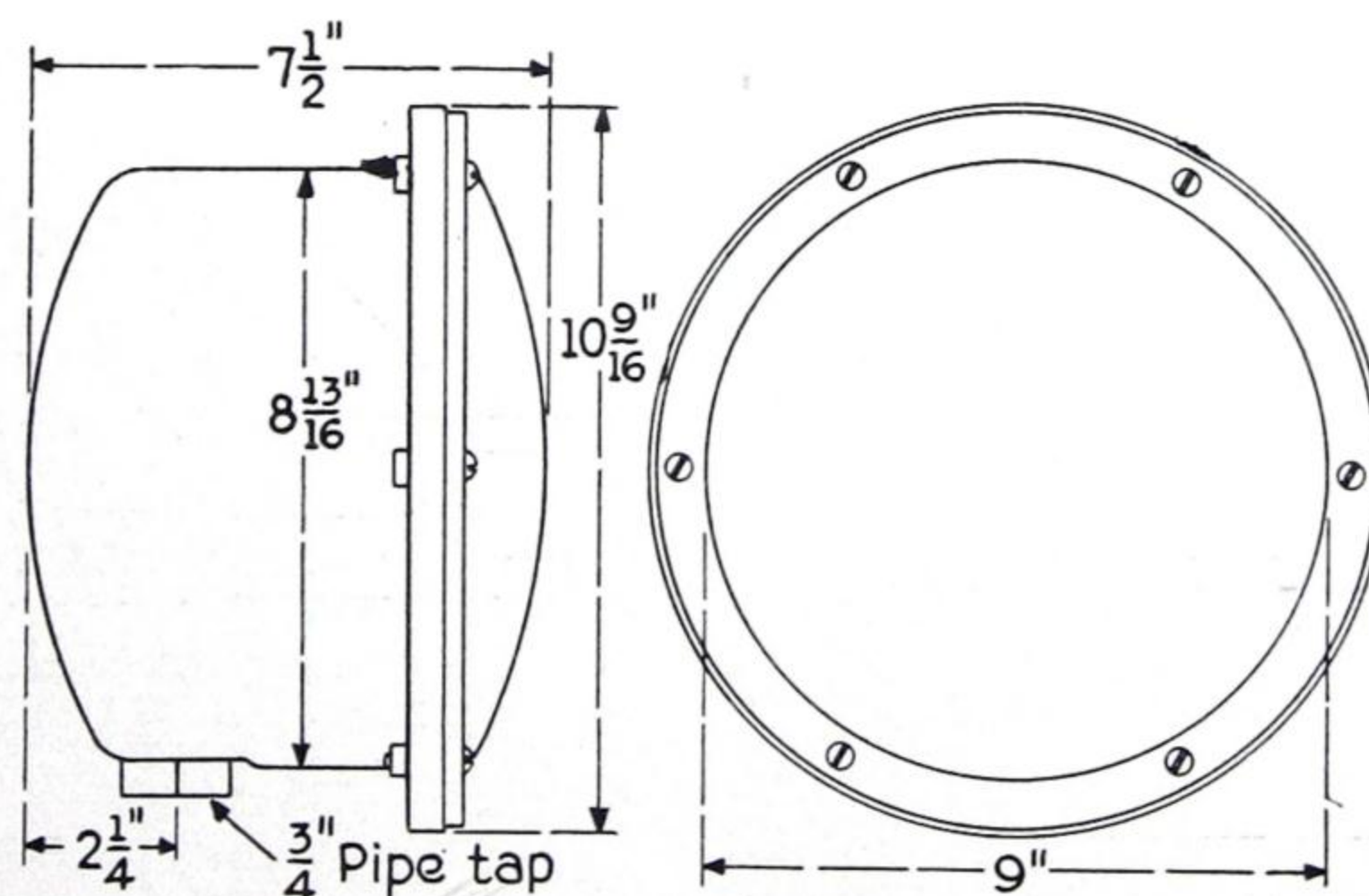
DESCRIPTION AND APPLICATION

The Type L-33 submersible floodlight projector consists essentially of a standard clear lens and reflector housed in a spun-copper casing. This unit is supported by a standard $\frac{3}{4}$ -in. pipe attached to the casing through a pipe fitting.

Because of its small size, and the distribution obtained, the Type L-33 is well adapted to swimming-pool lighting. It may also be mounted directly

underneath the sprinkler head of a lawn sprinkler unit, and by using a colored lens a very beautiful effect can be obtained.

The Type L-33 floodlight is designed for use with the 250-watt headlight and floodlight lamps, and should not be lighted until after water is applied. A flexible pipe coupling can be furnished for universal adjustment of the projector.

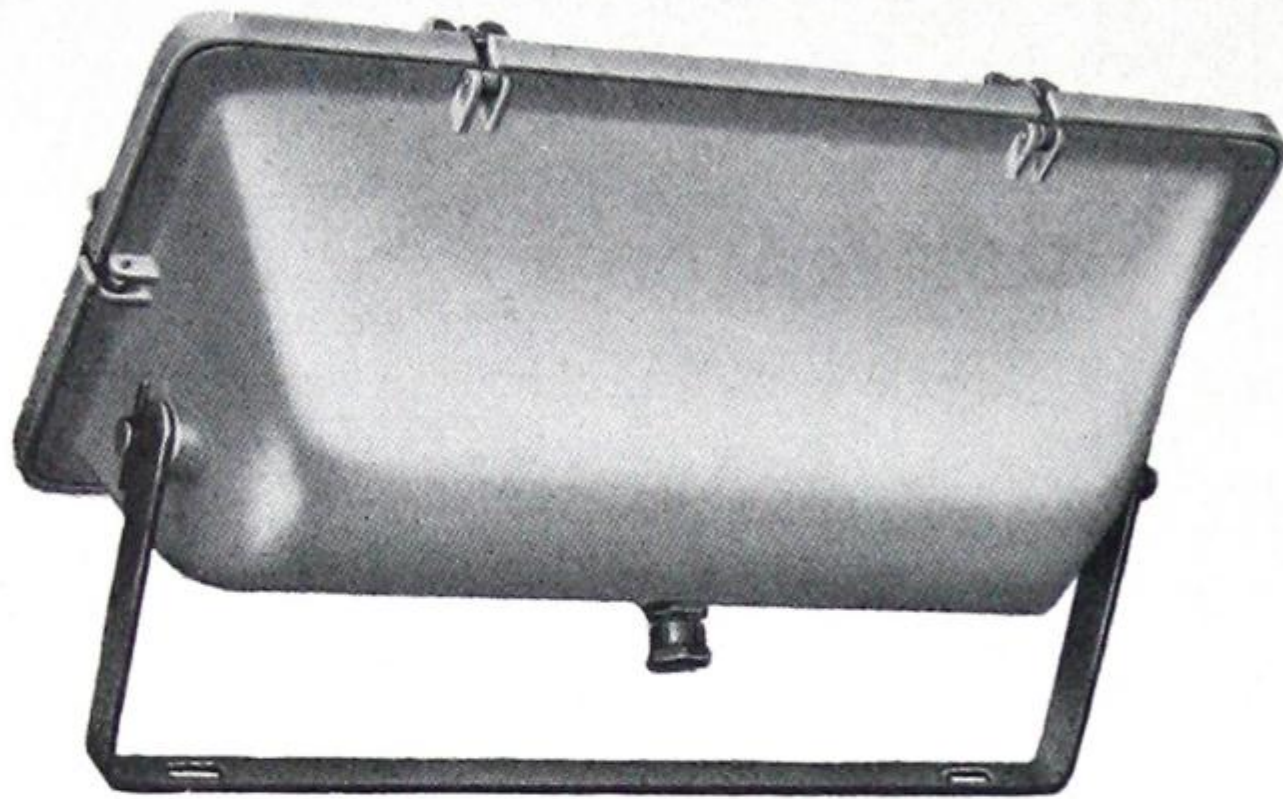


(K-3744814)

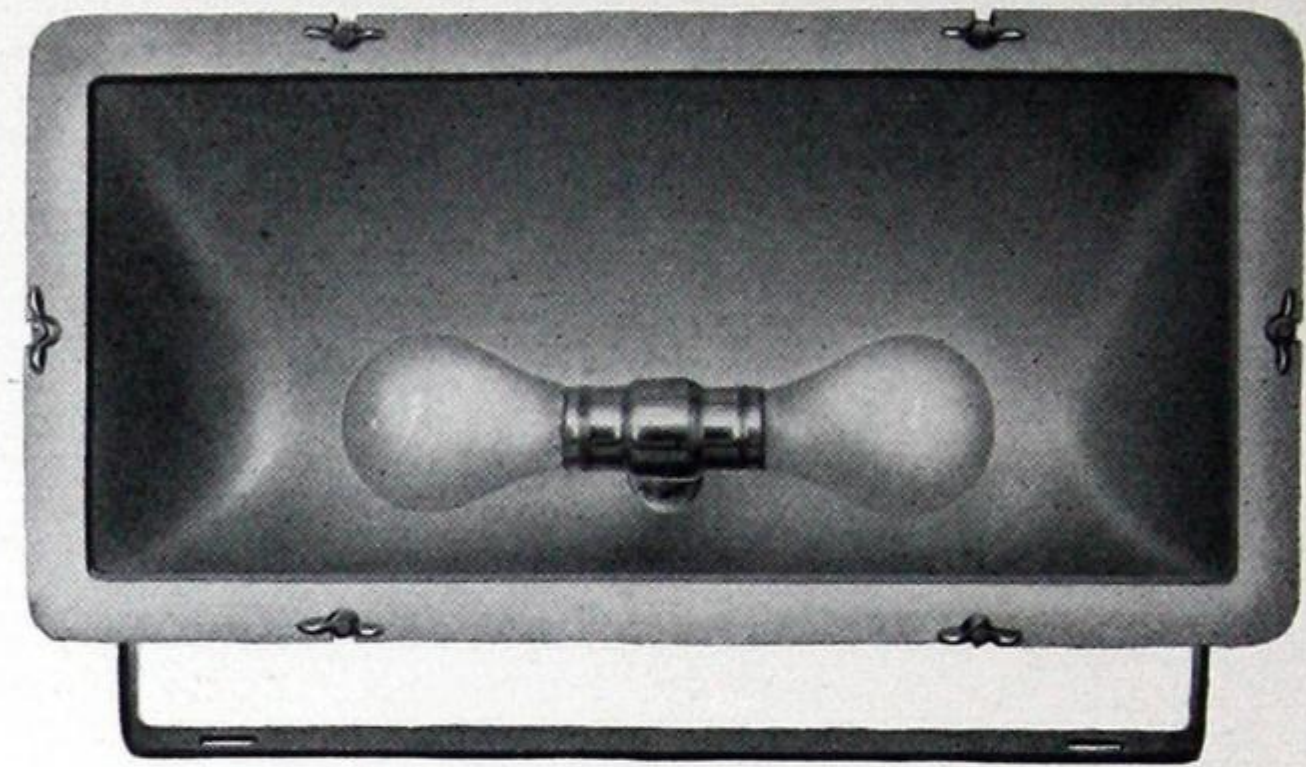
Fig. 60

Dimensions of Type L-33

TYPE L-32 CORNICE LIGHTING UNIT



(Photo No. 715580)
Fig. 61
Type L-32 Cornice Unit



(Photo No. 715579)
Fig. 62
Type L-32 Cornice Unit

DESCRIPTION

The Type L-32 cornice-lighting unit consists of a hot-dip galvanized cast-iron casing in the form of a parabolic cylinder with closed ends, equipped with a twin socket for operating two general-service lamps. The inner surface of the casing, which is the reflecting medium, is sprayed with a special glossy-white paint. This provides a good reflecting surface and also gives a wide distribution of light.

The unit is equipped with a trunnion bracket for mounting. By loosening the wing nut at each end of the casing, it may be adjusted to any position.

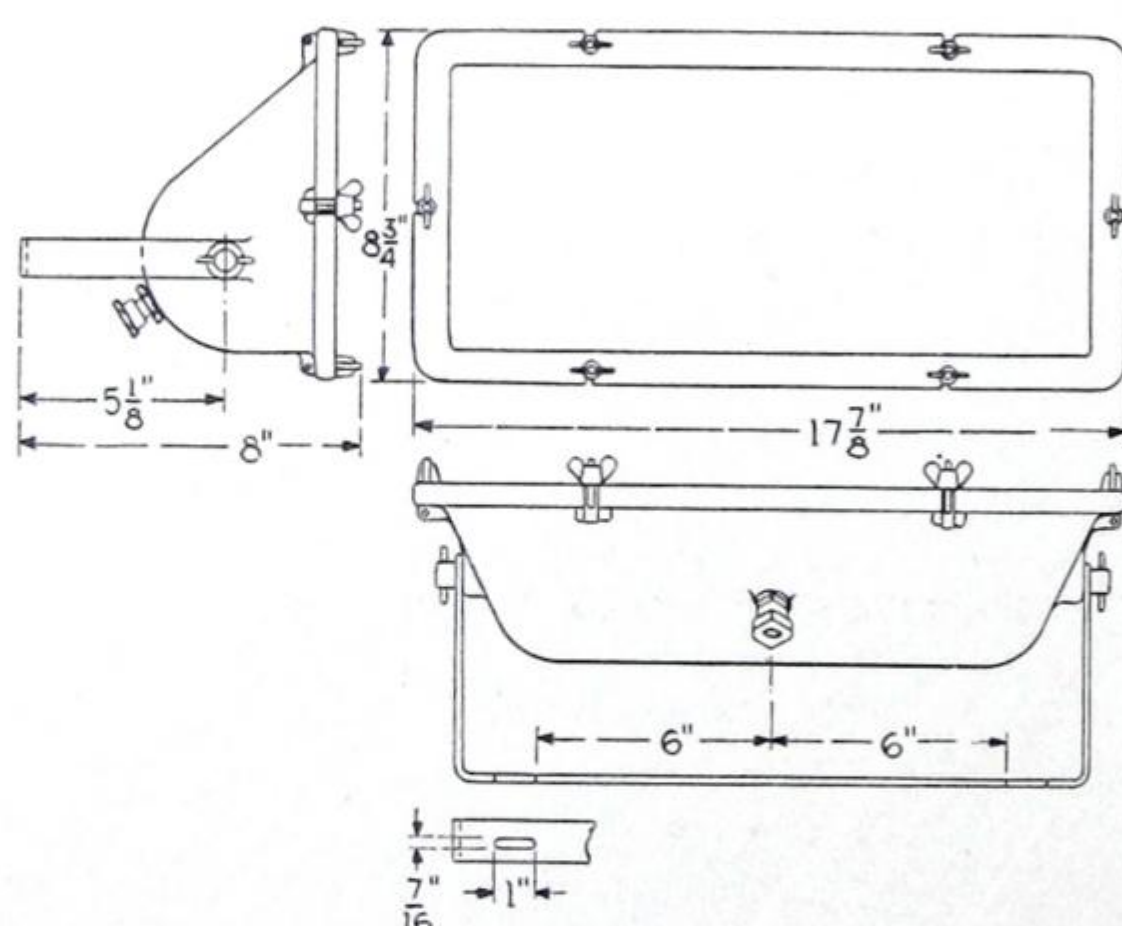
Heat-resisting clear-glass doors are used and 50-, 60-, or 100-watt general-service lamps.

The door is fastened to the casing by either one of two methods, i.e., with or without hinging. In the hinged type, the door is held in place by two

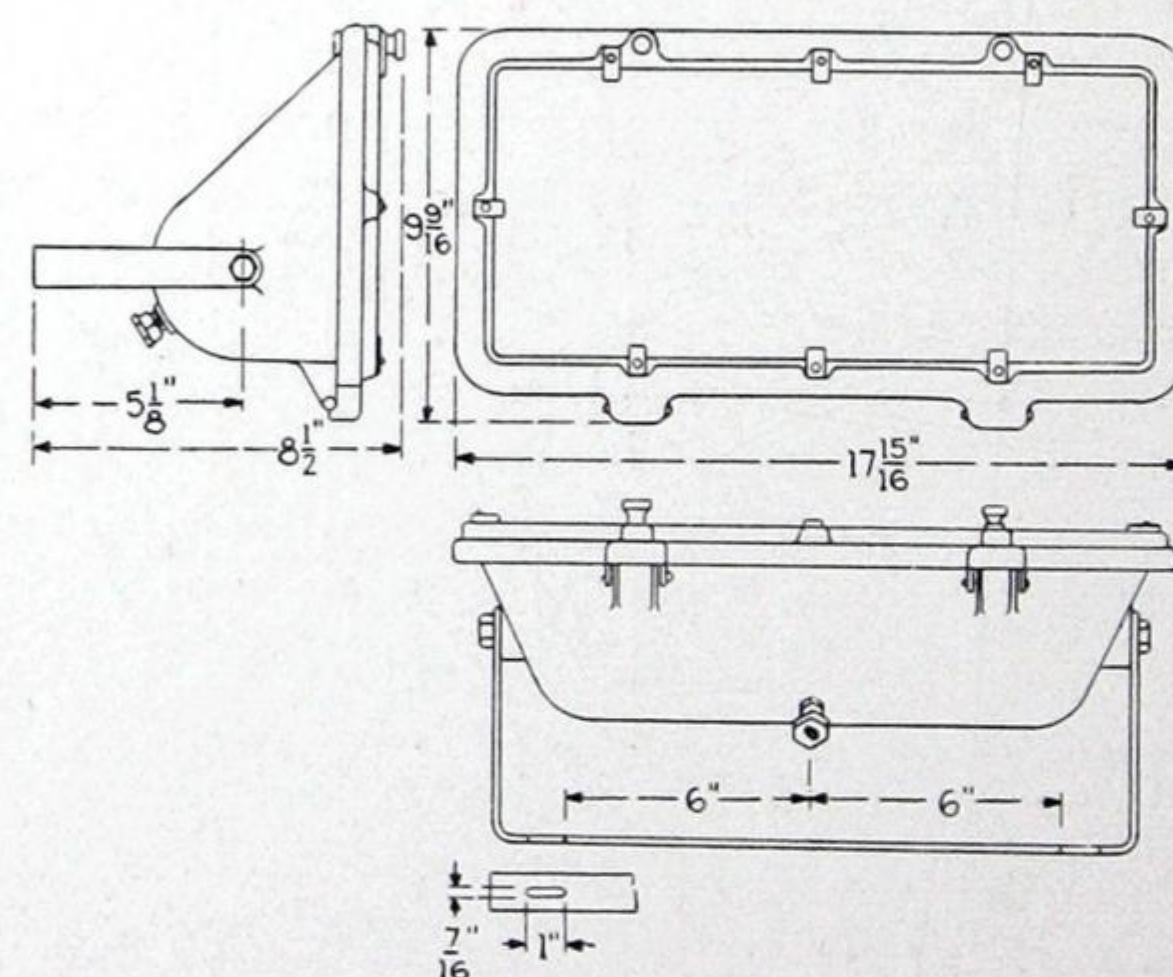
thumb-screw latches on the front side, two hinges at the rear. In the unhinged type, the cover is securely fastened to its casing by six screws. The lens is fastened to the outside of the door in such a manner as to make the unit weatherproof.

APPLICATION

The Type L-32 unit is suitable for mounting on the top of a cornice to eliminate the shadow created from floodlights mounted below. Its mounting height is low so that it will not be conspicuous along the cornice and its distribution is of such a wide nature that it is very effective for this type of short-range floodlighting. Other applications for which this unit is particularly adapted include: relief lighting, cove lighting, and outdoor home lighting for spectacular effects.



(K-3758361)
Fig. 63
Dimensions of Type L-32 Cornice Unit
with Screw Cover



(K-3744850)
Fig. 64
Dimensions of Type L-32 Cornice Unit
with Hinge Cover

METHOD OF SOLVING FLOODLIGHTING PROBLEMS

The illumination of surfaces such as building façades, sign boards, etc., to a desired level of illumination intensity is a problem frequently arising and requiring an immediate solution. Such a problem may be roughly separated into three steps and a satisfactory solution found in the following manner:

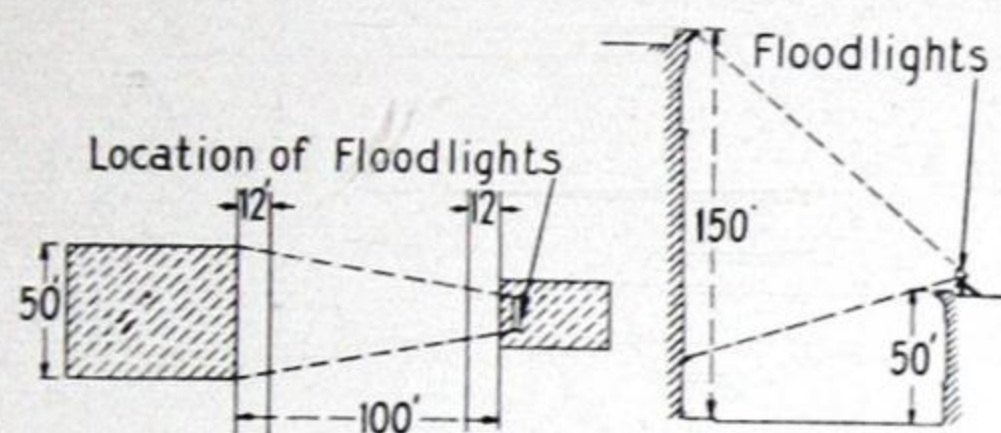


Fig. 65

EXAMPLE:—A light-gray limestone office building along a white way, having a front façade 150 ft. high by 50 ft. wide. Type, number, and wattage of floodlight projectors required to illuminate building from roof of building opposite. See Fig. 65.

First Step—The Intensity of Illumination (Foot-candles) Required.

This depends upon the type of building, the purpose of the floodlighting, the amount of conflicting light in the vicinity, etc. While the brightness to which one illuminates buildings is largely based on one's own judgment or experience, the general practice is indicated in the values given in tables on page 22. We find from the table of building characteristics that the conditions surrounding our problem require an illumination intensity of 20 foot-candles.

Second Step—Type of Projector.

Two considerations enter into the choice of a projector, viz., beam size and light output. The former determines the area covered by the beam and the latter the illumination provided. In table, page 23, we find a factor *F* given for each projector and the various types of reflectors and lens equipments. This factor multiplied by the distance of the projector from the surface gives the diameter of the beam pattern on the surface, assuming that the beam is perpendicular to the surface. It is desirable to cover as large a part of the surface with one projector as possible and obtain the desired illumination by the superimposing of beams. The maximum diameter of the beam that can be utilized without waste for the building in question is 50 feet and as the projectors are to be placed 100 feet away, we look for a projector with the factor 0.5. From the table on page 23, we find that the following projectors have the required factor:

L-30-B medium angle, 500-watt, G-40 lightly stippled lens, 3663 beam lumens.

L-31-A wide angle, 1000-watt, PS-52 lightly stippled lens, 7900 beam lumens.

Third Step—Number of Projectors.

The number of projectors required for any desired intensity over a definite surface is obtained from the following formula:

$$N = \frac{A \times E}{L}$$

N = Number of projectors.

A = Area of building façade in square feet.

E = Foot-candle intensity required.

L = Beam lumens delivered by one projector.

From the conditions of our problem, Area (*A*) is 150 by 50 ft. or 7500 sq. ft. *E* was found to be 20 foot-candles, and *L* for the L-30-B was found to be 3663 lumens and for the L-31-A, 7900 lumens.

The number of L-30-B projectors required is

$$\frac{7500 \times 20}{3663} = 41 \text{ (approx.)}$$

The number of L-31-A projectors required is

$$\frac{7500 \times 20}{7900} = 19 \text{ (approx.)}$$

We find from an analysis of the cost of installing and operating the two systems that we can deliver the required amount of light more cheaply by using 20 Form L-31-A projectors with 1000-watt general-service MAZDA lamps than by using 40 Form L-30-B projectors equipped with 500-watt floodlighting MAZDA lamps. The recommendation is, therefore, 20 Form L-31-A projectors.

*COLOR

There is a constantly growing demand for colored light for buildings. In many instances this demand is for mobile color. We are prepared to furnish reactance dimmers and other control equipment for this purpose. Complete information, prices, etc., will be furnished upon receipt of complete information as to requirements.

In providing for color effects, the colored-glass lenses obviously absorb light in excess of the plain glass, and the output of light is reduced. The beam and total lumens given in the table, page 23, should be multiplied by the following transmission factors in order to obtain the light flux delivered when using colored lenses.

TRANSMISSION FACTORS FOR COLORED LENSES

Red.....	0.15
Amber.....	0.50
Blue.....	0.04
Green.....	0.12

EXAMPLE:

Beam lumens for L-30, medium-angle, plain clear lens is 3796.

Beam lumens for same projector with red lens is $3796 \times 0.15 = 570$.

* Color lighting requires particularly careful study. It frequently is found advisable to use colored light on colored buildings, such as red light on red brick, for the best effect.

METHOD OF SOLVING FLOODLIGHTING PROBLEMS (Cont'd)

For high commercial buildings, where the illumination is not influenced by street lights, it has been found that 2 watts per square foot of clear light and 4 watts per square foot of colored light will give excellent results. Each proposition, however, presents its own problems involving many considerations, such as building surfaces, viewing distances, brightness of surrounding objects, etc., so that it would be best to refer special colored-floodlighting propositions to the Illuminating Engineering Laboratory.

The Illuminating Engineering Laboratory of the General Electric Company will make floodlighting recommendations concerning objects to be illuminated, upon receipt of data as follows:

1. Drawings and sketches with information on surface color and texture.
2. Plan of object and surroundings showing possible locations for floodlights.
3. Nature of lighting in vicinity.

ESTIMATING POWER REQUIREMENTS

Requests are sometimes made to estimate the power requirements for floodlighting a building pending the determination of the proper type of floodlight to use. An approximate figure for estimates for this purpose is 0.15 watt per square foot of surface per foot-candle.

EXAMPLE:

Required the approximate power necessary for floodlighting 10,000 square feet of building to an intensity of 10 foot-candles.

$$\text{Power} = 0.15 \times 10 \times 10,000 = 15.0 \text{ kw.}$$

BUILDINGS

Building Surfaces	Reflection Factors Per Cent	RECOMMENDED FOOT-CANDLE INTENSITIES		
		A	B	C
White terra cotta.....	60-80	15	10	5
Cream terra cotta.....				
Light marble.....				
Light gray limestone.....	40-60	20	12	7
Bedford limestone.....				
Buff limestone.....				
Smooth buff face brick..	20-40	25	15	10
Briar hill sandstone.....				
Smooth gray brick.....				
Medium gray limestone..				
Common tan brick.....	10-20	30	18	12
Dark field gray brick...				
Common red brick.....				
Brownstone.....				

FLOODLIGHTING INTENSITIES

Application	RECOMMENDED FOOT-CANDLE INTENSITIES	
	Good Practice	Minimum
(1) Office buildings.....	See following table	See following table
Hotels.....		
Banks.....		
Stores.....		
Theatres.....		
Factories.....		
Power stations.....		
(2) Monuments		
Public buildings.....		
(3) Decorative and spectacular effects (Christmas trees, flags, etc.).....	20.0	10.0
Landscapes.....	15.0	5.0
Stained glass windows.....	30.0	15.0
(4) Billboards.....	30.0	10.0
Signs.....	30.0	10.0
Smokestacks and water tanks.....	12.0	8.0
(5) Swimming pools.....	6.0	3.0
Bathing beaches.....	1.0	0.5
(6) Baseball.....	12.0	6.0
Football.....	12.0	6.0
Soccer field.....	12.0	6.0
Stadiums.....	12.0	6.0
Trap shooting.....	15.0	10.0
Playground.....	4.0	2.0
Golf greens.....	10.0	6.0
(7) Winter sports.....	2.0	1.0
(8) Pageants	20.0	5.0
Carnivals		
Expositions		
Circuses		
Fairs		
(9) Quarries and shipyards.....	6.0	2.0
Construction work.....	6.0	4.0
Dredging.....	2.0	1.0
(10) Railroad yards		
(a) Classification.....	0.15	0.1
(b) Mechanical retarder areas.....	1.0	0.5
Docks, loading platforms, etc.....	3.0	2.0
Aqueducts.....	1.0	0.5
Reservoirs.....	1.0	0.5
Mines.....	1.0	0.5
(11) Gasoline filling stations		
(a) Buildings and pumps.....	15.0	10.0
(b) Yard and driveways.....	4.0	2.0
Roadside stands and houses.....	4.0	2.0
Parking areas.....	1.0	0.5
Tourists' camps.....	2.0	0.5
(12) Real estate developments.....	10.0	5.0
Public auctions.....	10.0	5.0
(13) Air advertising.....	30.0	15.0
(14) Farms.....	1.0	0.5
Barns.....	1.0	0.5
Chicken houses.....	1.0	0.5
Orchards.....	1.0	0.5

A—Buildings on white ways; intensive street lighting; streets with many conflicting signs and light sources; lower portions of buildings falling under Class B locations.

B—Medium-intensity white ways; secondary business streets with few conflicting signs, etc.

C—Very little conflicting light, such as on residential streets, parks, lighted highways, etc.

The above suggestions can be only general and it will be found necessary to modify them in many instances to meet local conditions. Careful consideration must be given to existing illumination which will affect the solution of the problems. Propositions involving special conditions should be referred to the Illuminating Engineering Laboratory with complete information on conditions.

Types L-24-A and -B, L-29-A and -B, L-30-A and -B, and L-31-A and -B

ILLUMINATING DATA (For Estimating Purposes Only)

TYPE	WORKING DISTANCE	LAMP 115-VOLT	REFLECTORS	LENSES CLEAR	BEAM			TOTAL LUMENS	*F	DISTRIBUTION CURVE
					Angle in Degrees	Candles	Lumens			
L-29A	Up to 175 ft.	200-watt PS-30 C. General Service Lamp—6-in. L.C. Medium Base	10 7/16-in. Parabolic Glass Silver Plated	Plain Lightly Stippled Heavily Stippled Spread Light	26V-28H		1393	2225	0.48	H-133230
					38	27700	1400	2215	0.69	H-133231
					72	3870	1620	2205	1.45	H-133232
					29V-58H	8400	1467	2185	0.50V-1.10H	H-133233
L-29B	Up to 200 ft.	250-watt G-30 Flood- light Lamp. 3-in. L.C. Medium Base	10 7/16-in. Parabolic Glass Silver Plated	Plain Lightly Stippled Heavily Stippled Spread Light	18V-18.2H	51200	1500	2450	0.32	H-133234
					31V-32H	17000	1520	2420	0.56	H-133235
					68	4600	1660	2380	1.35	H-133236
					21V-50H	13200	1494	2420	0.37V-0.93H	H-133237
L-30A	300 ft.	500-watt G.S. Lamp PS-40 C. General Service 7-in. L.C. Mogul Base	14 3/4-in. Parabolic Glass Silver Plated	Plain Lightly Stippled Heavily Stippled Spread Light	20.6V-26.6H	107000	4164	6820	0.37V-0.48H	H-133238
					30.2V-35H	42300	4157	6750	0.54V-0.63H	H-133239
					48	21000	4030	6560	0.89	H-133240
					20V-53H	33100	4098	6550	0.36V-1.0H	H-133241
	Up to 100 ft.	500-watt General Service Lamp PS-40 C. General Service 7-in. L.C. Mogul Base	14 3/4-in. 1-piece Sectional Glass Silver Plated	Plain Lightly Stippled Heavily Stippled	60	18500	4900	6940	1.15	H-133242
					72	14100	5375	6840	1.45	H-133243
					100	9200	5850	6660	2.38	H-133244
L-30B	Up to 400 ft.	500-watt G-40 Flood- light Lamp 4 1/2-in. L.C. Mogul Base	14 3/4-in. Parabolic Glass Silver Plated	Plain Lightly Stippled Heavily Stippled Spread Light	11.2V-13.3H	278000	3796	5900	0.20V-0.23H	H-133149
					24.6V-25.6H	66000	3663	5800	0.44	H-133150
					43.5V-44.5H	26600	3467	5725	0.81	H-133151
					11.4V-43H	57700	3785	5650	0.20V-0.79H	H-133152
	Up to 150 ft.	500-watt G-40 Flood- light Lamp 4 1/2-in. L.C. Mogul Base	14 3/4-in. 1-piece Sectional Glass Silver Plated	Plain Lightly Stippled Heavily Stippled	44	28000	4250	6080	0.81	H-133245
					54	19000	4400	5970	1.04	H-133246
					70	13000	4750	5820	1.40	H-133247
L-31A	Up to 175 ft.	1000-watt PS-52 General Service Lamp 9 1/2-in. L.C.	14 3/4-in. Composite 1-piece Solid Glass Silver Plated	Plain Lightly Stippled Heavily Stippled Spread Light	21V-27H	142000	7558	13400	0.37V-0.48H	H-133248
					31V-37H	78600	7900	13100	0.55V-0.67H	H-133249
					52	42000	8600	12940	0.98	H-133250
					21V-53H	70000	8458	13020	0.37V-1.0H	H-133251
L-31B	Up to 800 ft.	1000-watt G-40 Flood- light Lamp 5 3/16 in. L.C. Mogul Base	14 3/4-in. Parabolic Glass Silver Plated	Plain Lightly Stippled Heavily Stippled Spread Light	12.5V-14.3H	448000	8053	12620	0.22	H-133201
					24.8V-26.5H	128000	7667	12450	0.45	H-133202
					43V-45H	47500	7106	12300	0.81	H-133203
					13.2-44H	105000	8034	12100	0.23V-0.81H	H-133204
L-24A	Up to 1500 ft.	1500-watt PS-52 General Service Lamp 9 1/2-in. L.C. Mogul Base	18 1/2-in. 2-piece Glass Silver Plated	Plain Lightly Stippled Spread Light	17.5V-23H	348600	12750	21440	0.30V-0.50H	H-132995
					25.5V-29.5H	187000	12560	20600	0.45V-0.53H	H-132996
		1000-watt PS-52 General Service Lamp 9 1/2-in. L.C. Mogul Base	18 1/2-in. 2-piece Glass Silver Plated	Plain Lightly Stippled Spread Light	19V-63.5H	118600	13830	21300	0.33V-1.24H	H-132997
L-24B	Up to 2000 ft.	1000-watt PS-52 General Service Lamp 9 1/2-in. L.C. Mogul Base	18 1/2-in. 2-piece Glass Silver Plated	Plain Lightly Stippled Spread Light	18V-21.5H	253000	8785	14720	0.32V-0.38H	H-132934
					25V-29H	131000	8665	14530	0.44V-0.52H	H-132993
		1000-watt G-40 Flood- light Lamp 5 3/16-in. L.C. Mogul Base	18 1/2-in. 2-piece Glass Silver Plated	Plain Lightly Stippled Spread Light	18.5V-63H	85700	9410	15160	0.33V-1.24H	H-132994
L-24B	Up to 2000 ft.	1000-watt G-40 Flood- light Lamp 5 3/16-in. L.C. Mogul Base	18 1/2-in. 2-piece Glass Silver Plated	Plain Lightly Stippled Spread Light	11.9V-15.5H	432000	6855	12440	0.21V-0.27H	H-133101
					22	175000	7315	12150	0.39	H-133104
		1000-watt G-40 Flood- light Lamp 5 3/16-in. L.C. Mogul Base	18 1/2-in. 2-piece Glass Silver Plated	Plain Lightly Stippled Spread Light	13V-56H	112000		12700	0.23V-1.06H	H-133105

Approximate correction factors either lenses or color plates.

RED	AMBER	BLUE	GREEN
10 to 20%	50 to 65%	3 to 5%	10 to 16%

- *1. Beam diameter in feet = Distance from projector in feet $\times$ Factor F. H = Horizontal. V = Vertical.
 2. For method of solving floodlighting problems refer to pages 21 and 22.
 3. For lamp data refer to page 25.

Types L-24-A and -B, L-29-A and -B, L-30-A and -B, and L-31-A and -B
NONFERROUS CASINGS—GLASS REFLECTORS

TYPE	MOUNTING	LAMP	REFLECTOR	FIG. NO.	LENS		FOR 110- TO 120- AND 220- TO 250-VOLT MULTIPLE CIRCUITS OR WITH SERIES MULTIPLE IL TRANSFORMERS			
					Type	† Color	Cat. No.	List Price Class X	Approx. Wt. in Lb.	
									Ship.	Net
L-29-A 12 1/4-in. Totally Enclosed	Swivel and Rocker	200-watt PS-30 General Service Medium Base	10 7/16-in. Parabolic Glass Silver Plated	19	Plain	Clear	1229485G115	\$36.00	63	16
					Plain	Red	1229485G119	41.00	63	16
					Plain	Amber	1229485G120	41.00	63	16
					Plain	Blue	1229485G121	41.00	63	16
					Plain	Green	1229485G122	41.00	63	16
					Lightly Stippled	Clear	1229485G118	36.00	63	16
					Heavily Stippled	Clear	1229485G116	36.00	63	16
					Heavily Stippled	Red	1229485G123	41.00	63	16
					Heavily Stippled	Amber	1229485G124	41.00	63	16
					Heavily Stippled	Blue	1229485G125	41.00	63	16
					Heavily Stippled	Green	1229485G126	41.00	63	16
					40 Degree Spread	Clear	1229485G117	36.00	63	16
L-29-B 12 1/4-in. Totally Enclosed	Swivel and Rocker	250-watt G-30 Flood- light Medium Base	10 7/16 in. Parabolic Glass Silver Plated	19	Plain	Clear	1229485G23	35.50	63	16
					Plain	Red	1229485G28	40.50	63	16
					Plain	Amber	1229485G29	40.50	63	16
					Plain	Blue	1229485G30	40.50	63	16
					Plain	Green	1229485G31	40.50	63	16
					Lightly Stippled	Clear	1229485G27	35.50	63	16
					Heavily Stippled	Clear	1229485G24	35.50	63	16
					Heavily Stippled	Red	1229485G32	40.50	63	16
					Heavily Stippled	Amber	1229485G33	40.50	63	16
					Heavily Stippled	Blue	1229485G34	40.50	63	16
					Heavily Stippled	Green	1229485G35	40.50	63	16
					40 Degree Spread	Clear	1229485G25	35.50	63	16
L-30-A 18-in. Totally Enclosed	Swivel and Trunnion	500-watt General Service PS-40 Mogul Base	14 3/4-in. Parabolic Glass Silver Plated	22	Plain	Clear	1229485G101	58.00	93	34
					Plain	Red	1229485G106	64.00	93	34
					Plain	Amber	1229485G107	64.00	93	34
					Plain	Blue	1229485G108	64.00	93	34
					Plain	Green	1229485G109	64.00	93	34
					Lightly Stippled	Clear	1229485G104	58.00	93	34
					Heavily Stippled	Clear	1229485G103	58.00	93	34
					Heavily Stippled	Red	1229485G110	64.00	93	34
					Heavily Stippled	Amber	1229485G111	64.00	93	34
					Heavily Stippled	Blue	1229485G112	64.00	93	34
					Heavily Stippled	Green	1229485G113	64.00	93	34
					40 Degree Spread	Clear	1229485G105	58.00	93	34
		500-watt, G-40 Floodlight Mogul Base or 250-watt G-30 Flood- light Medium Base by Add- ing Cat. No. GE070 Adapter. Specify on Requisition. No addition	14 3/4-in. One-piece Sectional Glass Silver Plated	22	Plain	Clear	1229485G127	58.00	93	34
					Plain	Red	1229485G132	64.00	93	34
					Plain	Amber	1229485G133	64.00	93	34
					Plain	Blue	1229485G134	64.00	93	34
					Plain	Green	1229485G135	64.00	93	34
					Lightly Stippled	Clear	1229485G130	58.00	93	34
					Heavily Stippled	Clear	1229485G129	58.00	93	34
					Heavily Stippled	Red	1229485G136	64.00	93	34
					Heavily Stippled	Amber	1229485G137	64.00	93	34
					Heavily Stippled	Blue	1229485G138	64.00	93	34
					Heavily Stippled	Green	1229485G139	64.00	93	34
L-30-B 17 1/4-in. Totally Enclosed	Swivel and Trunnion	500-watt, G-40 Floodlight Mogul Base or 250-watt G-30 Flood- light Medium Base by Add- ing Cat. No. GE070 Adapter. Specify on Requisition. No addition	14 3/4-in. Parabolic Glass Silver Plated	25	Plain	Clear	1229485G1	56.00	93	33
					Plain	Red	1229485G37	62.00	93	33
					Plain	Amber	1229485G38	62.00	93	33
					Plain	Blue	1229485G39	62.00	93	33
					Plain	Green	1229485G40	62.00	93	33
					Lightly Stippled	Clear	1229485G4	56.00	93	33
			14 3/4-in. Parabolic Glass Silver Plated	25	Heavily Stippled	Clear	1229485G3	56.00	93	33
					Heavily Stippled	Red	1229485G41	62.00	93	33
					Heavily Stippled	Amber	1229485G42	62.00	93	33
					Heavily Stippled	Blue	1229485G43	62.00	93	33
					Heavily Stippled	Green	1229485G44	62.00	93	33
					40 Degree Spread	Clear	1229485G5	56.00	93	33
			14 3/4-in. One- piece Sec- tional Glass Silver Plated	25	Plain	Clear	1229485G6	56.00	93	33
					Plain	Red	1229485G45	62.00	93	33
					Plain	Amber	1229485G46	62.00	93	33
					Plain	Blue	1229485G47	62.00	93	33
					Plain	Green	1229485G48	62.00	93	33
					Lightly Stippled	Clear	1229485G9	56.00	93	33
			14 3/4-in. One- piece Sec- tional Glass Silver Plated	25	Heavily Stippled	Clear	1229485G8	56.00	93	33
					Heavily Stippled	Red	1229485G49	62.00	93	33
					Heavily Stippled	Amber	1229485G50	62.00	93	33
					Heavily Stippled	Blue	1229485G51	62.00	93	33
					Heavily Stippled	Green	1229485G52	56.00	93	33

(Cont'd on page 25)

Types L-24, L-25, L-29, L-30, and L-31

TYPE	MOUNTING	LAMP	REFLECTOR	FIG. NO.	CLEAR LENS		FOR 110- TO 120- AND 220- TO 250-VOLT MULTIPLE CIRCUITS OR WITH SERIES MULTIPLE IL TRANSFORMER			
					Type	† Color	Cat. No.	List Price Class X	Approx. Wt. in Lb.	
L-31-A 18-in. Totally Enclosed	Swivel and Trunnion	†1000- or 750-watt PS-52 General Service Mogul Base	14¾-in. Composite One-piece Solid Glass, Silver Plated	28	Plain	Clear	1229485G13	\$63.00	93	38
					Plain	Red	1229485G54	69.00	93	38
					Plain	Amber	1229485G55	69.00	93	38
					Plain	Blue	1229485G56	69.00	93	38
					Plain	Green	1229485G57	69.00	93	38
					Lightly Stippled	Clear	1229485G16	63.00	93	38
					Heavily Stippled	Clear	1229485G15	63.00	93	38
					Heavily Stippled	Red	1229485G58	69.00	93	38
					Heavily Stippled	Amber	1229485G59	69.00	93	38
					Heavily Stippled	Blue	1229485G60	69.00	93	38
					Heavily Stippled	Green	1229485G61	69.00	93	38
					40 Degree Spread	Clear	1229485G17	63.00	93	38
L-31-B 18-in. Totally Enclosed	Swivel and Trunnion	1000-watt G-40 Floodlight Mogul Base	14¾-in. Parabolic Glass, Silver Plated	32	Plain	Clear	1229485G18	61.00	93	37
					Plain	Red	1229485G63	67.00	93	37
					Plain	Amber	1229485G64	67.00	93	37
					Plain	Blue	1229485G65	67.00	93	37
					Plain	Green	1229485G66	67.00	93	37
					Lightly Stippled	Clear	1229485G21	61.00	93	37
					Heavily Stippled	Clear	1229485G20	61.00	93	37
					Heavily Stippled	Red	1229485G67	67.00	93	37
					Heavily Stippled	Amber	1229485G68	67.00	93	37
					Heavily Stippled	Blue	1229485G69	67.00	93	37
					Heavily Stippled	Green	1229485G70	67.00	93	37
					40 Degree Spread	Clear	1229485G22	61.00	93	37
L-24-A 18-in. *Without Visor Totally Enclosed	Swivel and Trunnion	1500-, 1000-, or 750-watt PS-52 General Service Mogul Base	18½-in. Two-piece Glass, Silver Plated	36	Plain	Clear	3125183	150.00	176	74
					Lightly Stippled	Clear	3125184	150.00	176	74
					50 Degree Spread	Clear	3125185	150.00	176	74
L-24-B 18-in. *Without Visor Totally Enclosed	Swivel and Trunnion	1000-watt G-40 Floodlight Mogul Base	18½-in. Two-piece Glass, Silver Plated	37	Plain	Clear	3125186	150.00	170	69
					Lightly Stippled	Clear	3125187	150.00	170	69
					50 Degree Spread	Clear	3125200	150.00	170	69

* If visor is required specify Cat. No. 3758078P1 at \$6.00 each, Class X.

† For color plates see table below.

‡ 500- and 300-watt general-service lamps may be used by addition of socket extension. Refer to General Office.

NOTE: Prices subject to change without notice.

† GLASS COLOR PLATES FOR USE WITH PROJECTORS EQUIPPED WITH CLEAR LENS

	Fig. No.	CAT. NO.				LIST PRICE Class X	SHIP. WT. in Lb. Carton of 6	NET WT. in Lb.
		Red	Amber	Blue	Green			
For use with Type L-29.....	18	3758335G4	3758335G2	3758335G3	3758335G1	π\$3.50	11	1.5
For use with Types L-30 and L-31..	26, 33	3758336G4	3758336G2	3758336G3	3758336G1	π6.00	22	2.5

π These prices represent the amount to add to the price of complete projector when it is to be equipped with color screen.

NOTE: Prices subject to change without notice.

LAMP DATA

USED WITH PROJECTOR TYPE	WATTS	VOLTS	BASE	BULB (Clear Glass)	LIFE in Hours	LUMENS	LIGHT CENTER LENGTH (In.)	MAX. OVERALL DIMENSIONS (In.)	SERVICE	STD. PKG. QTY.
L-32	60	110-115-120	Medium	ΔA-21	1000	690	3¾	5¼	General	120
	100	110-115-120	Medium	ΔA-23	1000	1360	4¾	6¼	General	60
L-29-A	200	110-115-120	Medium	PS-30	1000	3340	6	8½	General	24
L-29-B and L-33	250	110-115-120	Medium	G-30	800	3575	3	5⅞	Floodlighting	24
L-30-A	500	110-115-120	Mogul	PS-40	1000	9650	7	9⅓	General	12
L-1, L-9, L-23, L-30-B	500	110-115-120	Mogul	G-40	800	8300	4¼	7¼	Floodlighting	12
L-24-A, L-31-A	750	110-115-120	Mogul	PS-52	1000	14550	9½	13⅞	General	8
	1000	110-115-120	Mogul	PS-42	1000	20200	9½	13⅞	General	8
L-23, L-24-B, L-31-B	1000	110-115-120	Mogul	G-40	800	17800	5¾	7¾	Floodlighting	12
	1500	110-115-120 (100-130)	Mogul	PS-52	1000	33000	9½	13⅞	General	6

Δ Inside frosted.

Types L-1, L-9, L-23, L-32, and L-33

CAST-IRON FRAMES, AND METAL OR GLASS REFLECTORS

For 110- and 220-volt Multiple Circuits or with IL Series Multiple Transformer

TYPE	MOUNTING	LAMP	REFLECTOR	FIG. NO.	LENSES	CAT. NO.	LIST PRICE Class X	WT. IN LB.	
								Ship.	Net
L-1 16-in. Totally Enclosed	Hinged	500-watt G-40 Floodlighting Mogul Base	14 $\frac{3}{4}$ -in. Parabolic Aluminum	46	{ Clear * Heavily Stippled 40 Deg. Spreadlite	166012 2X390 3049418	\$35.00 35.00 35.00	75	31
	Swivel and Trunnion			47	{ Clear * Heavily Stippled 40 Deg. Spreadlite	189962 2X392 3049417	38.00 38.00 38.00	82	38
	Swivel and Pipe Stand			48	{ Clear * Heavily Stippled 40 Deg. Spreadlite	195852 2X394 3049425	40.00 40.00 40.00	89	45
L-9 16-in. Totally Enclosed	Hinged	500-watt G-40 Floodlighting Mogul Base	14 $\frac{3}{4}$ -in. Glass Silver Plated	52	{ Clear * Heavily Stippled 40 Deg. Spreadlite	289487 3049430 3049431	45.00 45.00 45.00	79	34
	Swivel and Trunnion			53	{ Clear * Heavily Stippled 40 Deg. Spreadlite	195863 2X402 3049432	48.00 48.00 48.00	86	42
	Swivel and Pipe Stand			54	{ Clear * Heavily Stippled 40 Deg. Spreadlite	195864 2X403 3049433	50.00 50.00 50.00	92	48
L-23 16-in. Submersible Fountain Type	Swivel and Trunnion	{ G-40 500 G-40 1000 Floodlighting Mogul Base	16-in. Parabolic Glass	58	Clear		90.00	80	33
	Swivel and Pipe Stand			57	Clear	3049414	95.00	85	37
	Bracket			56	Clear		90.00	85	35
L-33 Submersible Type	Pipe Support	250-watt G-30 Floodlighting Medium Base	8-in. Parabolic Glass	60	† Plain Clear	1229490G7	25.00	...	...
L-32 Cornice	Screw Cover	2-60-, 75- or 100-watt General Service Medium Base	Metal Aluminum Paint	63	† Plain Clear	1229489G8	19.00	...	...
	Trunnion							...	...
	Hinge cover			64		1229489G13	22.00	...	...

(1) If plain red, amber, blue, or green front-door glass is required for L-1, L-9, or L-23 add \$6.00 to List Price of projector with clear lens.
 (2) Mogul sockets furnished on L-1 and L-9 projectors. If 250-watt lamp is to be used, specify when ordering to add Cat. No. GE070 adapter, no addition in price.

* (3) Lightly stippled lenses may be furnished at same price.

† (4) Colored lenses can be furnished, add \$6.00 to list price of projector with clear lens.

NOTE: Prices subject to change without notice.

ILLUMINATING DATA

TYPE	WORKING DISTANCE	LAMP 115-VOLT	CLEAR LENSES	BEAM			TOTAL LUMENS	* F	PHOTO-METRIC CURVE
				Angle in Deg.	Candles	Lumens			
L-1	Up to 400 Ft.	500-watt Floodlighting	Clear Heavily Stippled 40 Deg. Spreadlite	11	192000	2420	5000	0.19	C-61,137
				48	19000	2800	4890	0.89	C-61,249
L-9	Up to 400 Ft.	500-watt Floodlighting	Clear Heavily Stippled 40 Deg. Spreadlite	12° V x 44° H	47000		4980	.21 V x .81 H	H-132,761
				12	305000	3405	6100	0.21	H-130,841
L-23		500-watt Floodlighting	Clear	50	22800	3840	5780	0.93	H-130,842
				14° V x 42° H	78000		5810	.26 V x .77 H	H-132,759
L-32		500-watt Floodlighting	Clear	12	305000	3405	6100	0.21	H-130,841

1. Beam diameter in feet = Distance from projector in feet × Factor F. H = Horizontal. V = Vertical.
2. For method of solving floodlighting problems refer to pages 21 and 22.
3. For lamp data refer to page 25.

GENERAL ELECTRIC COMPANY

GENERAL OFFICE



SCHENECTADY, N. Y.

Sales Offices—Address nearest Office

Akron, Ohio.....	159 South Main Street	Milwaukee, Wis.....	940 West St. Paul Avenue
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Hartford, Conn.....	18 Asylum Street	Tacoma, Wash.....	1019 Pacific Avenue
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New York City, 120 Broadway General Sales Office, Schenectady, N. Y.

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ECUADOR: Guayaquil Agencies Co., Guayaquil
EGYPT: British Thomson-Houston Company, Ltd., Cairo
FRANCE AND COLONIES: Compagnie Francaise Thomson-Houston, Paris; International General Electric Co., Inc., Paris; Compagnie Des Lampes, Paris
GERMANY: H. B. Peirce, Representative, General Electric Co., Berlin
GREAT BRITAIN AND IRELAND: International General Electric Co., Inc., British Thomson-Houston Co., Ltd., London, W.C.2; British Thomson-Houston Co., Ltd., Rugby
GREECE AND COLONIES: Compagnie Francaise Thomson-Houston, Paris, France
HOLLAND: Mijnsen & Co., Amsterdam
INDIA: International General Electric Company, Inc., Calcutta, Bombay and Bangalore
ITALY AND COLONIES: Compagnia Generale Di Elettricit , Milan
JAPAN: Shibaura Engineering Works, Tokyo; Tokyo Electric Company, Ltd., Kawasaki, Kanagawa-Ken; International General Electric Co., Inc., Tokyo
JAVA: International General Electric Co., Inc., Soerabaya
MEXICO: General Electric, S. A., City of Mexico, Guadalajara, Monterrey, Vera Cruz and El Paso, Texas
NEWFOUNDLAND: International General Electric Co., Inc., St. Johns
NEW ZEALAND: National Electrical and Engineering Company, Ltd., Auckland, Dunedin, Christchurch and Wellington
PARAGUAY: General Electric, S. A., Buenos Aires, Argentina
PERU: International Machinery Co., Lima
PHILIPPINE ISLANDS: Pacific Commercial Company, Manila; International General Electric Co., Inc., Manila
PORTO RICO: International General Electric Company of Porto Rico, San Juan
PORTUGAL AND COLONIES: Sociedade Iberica de Construc es Electricas Lda., Lisbon
SOUTH AFRICA: South African General Electric Company, Ltd., Johannesburg, Capetown, Durban, and Port Elizabeth
SPAIN AND COLONIES: Sociedad Iberica de Construcciones Electricas, Madrid, Barcelona, Bilbao, Valladolid, and Sevilla
SWITZERLAND: Trolliet Freres, Geneva
URUGUAY: International General Electric, S. A., Montevideo
VENEZUELA: International General Electric, S. A., Caracas and Maracaibo

